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ABSTRACT

The theme of this conference proceedings of the National Rural Studies Committee is "rural areas in an urbanized region." The presentations cover such issues as urbanization, rural land use, public policies, farmland preservation, environmental policy, natural resources, land management, land-grant university reform, cooperative extension, poverty, and rural living. The following titles and presenters are included in the proceedings: "The Urban Invasion of the Rural Northeast (Peirce Lewis); "Rural Land Use Planning in the Northeast: Diversity Amid Ambiguity" (Mark B. Lapping); "The Rural Fringe in the New Metropolis" (Julian Wolpert and Michael N. Danielson); "Farm, Woods, and Town: The Environs of 'Walden'" (William Howarth); "Land Use Conflicts at the Rural-Urban Border: The Agglomeration Argument" (William A. Fischel); "Rural Land Management and the Welfare of Rural People" (Pierre R. Crosson); "Modernizing the Land-Grant University" (Lamartine F. Hood); "Challenges to Cooperative Extension in Urbanized Settings" (Richard E. Fowler); "Rural Areas, Urbanized Regions and the Great Challenges to Land Grant Universities" (Joseph E. Kunsman); and "Rural Poverty in the Northeast Region: Perspectives from Upstate New York" (Janet M. Fitchen). This document contains several figures, tables, and maps; some chapters provide references. (KS)

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# National Rural Studies Committee

## a proceedings

Reading, Pennsylvania
May 16-17, 1991

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# National Rural Studies Committee

## fourth annual meeting
## sponsored by
## W. K. Kellogg Foundation

proceedings published by the
Western Rural Development Center
at Oregon State University
Edited by Emery Castle and
Barbara Baldwin

# Preface

This proceedings is for the fourth annual meeting of the National Rural Studies Committee. In addition, the Committee has held one mid-year meeting in December, 1990. It is appropriate that we summarize and assess the problems we have observed in rural America as well as the academic response to those problems. This preface is an attempt to do that in a few pages and provide perspective for the papers that follow.

## The American countryside: rural people and rural places

The NRSC has taken existing information about the changing nature of the American countryside into account as it planned its program and conducted its affairs. From the outset the NRSC has proceeded knowing that most rural people are no longer directly engaged in farming, forestry and mining. It has recognized that rural people and places are affected by many external forces and influences such as international markets and national policies (Brown). Nor did the NRSC proceed to study that which is rural in isolation from that which is urban. Nevertheless, important social problems can be understood *only* if the rural dimension of those problems is explicitly recognized. Clearly our Nation has become more urbanized in recent decades. But rural (less densely populated) places still function even though inhabited by relatively fewer people. The fact of relatively lower population density is the essence of rurality; in the context of NRSC work, "rural" is a relative concept.[1] If required to state its domain of concern in terms of the official Census definition, "non-metropolitan" would best describe the geographic area with which the NRSC works.

We have been enormously impressed by the *rural* people with whom we have spoken. They have been open in sharing both their aspirations and disappointments. In a fundamental sense, no doubt, their aspirations and frustrations are similar to those of the people in urban areas—rural people want their children to have a good life; they would like to have a good job or have economic opportunities. They would like to live in a healthy and attractive environment and they would like a responsive and efficient government. Their self-image and their sense of place may not correspond well with the urban concept of that which is rural (Howarth; Hudson).

*Poverty* afflicts a higher percentage of rural than urban people and the differential is becoming greater. Racial minorities are over represented among those who suffer rural poverty but most rural people are not racial minorities. An understanding of the social, cultural, economic, political, and geographic dimensions of being poor in the rural United States requires scholarship of the highest order. Some generalizations can be drawn but reliable explanations and effective policies will depend on detailed and specific investigations (Brown and Warner; Ross; Fitchen). The NRSC is actively engaged in investigating and calling these needs to the attention of the appropriate academic community.

*Rural families and communities* are subject to their own unique stresses and strains (Jensen). As noted, one of the annual meetings of the NRSC was in rural Iowa. By many measures, Iowa is one of the more progressive states in the nation. Literacy rates are high, educational attainment is considerable, the work force is productive, and poverty rates are low. Even so, the state has been subject to considerable economic stress in recent years. Many farmers and other rural residents have experienced severe financial problems. Many of the smaller towns and communities have declined in population either relatively, absolutely or both. Divorce, suicides and substance abuse among the rural population have increased sharply. Iowa is not mentioned here as a special case but rather to note that even progressive rural places are not immune to pressures resulting from economic and social change.

Many *rural young people* will leave the community in which they are reared as they become adults. The entire nation has a stake in their educational attainments because we will benefit if they are well educated and we will suffer a cost if they are not. Again, the NRSC is impressed by the diversity in the quality of rural education. Even when the quality of education is relatively high, problems often exist which typically are manifested in the financing and local control of education. The ideal of local control and widespread parental involvement in education is often at odds with trends toward the centralized financing of education. Both may be desirable and means need to be developed so both can be realized.

The presence of a good job or *economic opportunity* often makes other social problems much more solvable. Because of this, there is an understandable tendency to equate rural studies with rural economics and rural development with economic development. The NRSC has avoided this temptation by its composition—economists are cheek to jowl with anthropologists, sociologists, geographers, political scientists, and humanists. Nevertheless, it would be a grave mistake to underestimate the significance of economic development in rural studies.

The supply of places that would like to accommodate additional economic activity greatly exceeds the demand for such places. Destructive competition often develops among rural communities as they strive to attract industry. Also, it is difficult, if not impossible, to predict particular communities where "lightning will strike." Viewed from a community leader standpoint it is difficult to know when "to raise the ante, stand pat, or fold" in poker parlance. Given the understandable desire of many rural residents to remain in their communities, the incentive to "raise the ante" is often very great (Mills).

The relative importance and role of the natural resource extraction industries—farming, mining, forestry, energy production and fishing—rural manufacturing, and the service industries need to be understood in the large as well as for particular places. Rural manufacturing traditionally has been viewed as the principal alternative to the natural resource extraction industries which it now exceeds as a provider of employment in non-metropolitan places. However, the 1980s demonstrated that many such enterprises are highly dependent on international markets and often get their rural advantage from a low cost labor supply (Summers, Horton, Gringeri). Rural manufacturing seldom provides a lucrative or stable demand for excess rural labor.

All rural areas are not declining in economic activity and population. The development of the "Galactic City" that is spread over the landscape as a response to the interstate highway system and the dispersion of jobs and residents from growing metropolitan areas has overwhelmed many rural communities and has had a major impact on others (Lewis). Rather than trying to reverse economic decline, these communities strive to manage the growth which has stemmed from external forces over which they have little control or influence (Bergman; Wolpert).

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[1] The term "relatively fewer people" does not mean that the number of rural people are declining. This is not the case as their numbers are increasing. However, to be "rural" means that population density is less than is the case for "urban" areas.

This opens up a rich field of investigation and associated educational opportunities for economists, political scientists and others. What constitutes a rational strategy for rural communities in the face of great uncertainty with respect to economic development? What is likely to be the aggregate effect of micro decisions by small communities either under conditions of economic decline or expansion? Economists and others may need to think more in terms of adapting to uncertainty rather than prescribing particular solutions for immediate problems. This becomes especially important if the "solutions" reduce an area's capacity to adapt or adjust to future developments.

Rural people are afflicted with a great ambivalence toward the three R's—retirement communities, outdoor recreation enterprises and rural residences for urban people. On the one hand, the increased economic activity may be welcomed; on the other hand, such activity may disrupt, or forever change, traditional enterprises and lifestyles. These non-traditional rural enterprises represent a new use for rural space; they reflect the demands of an increasingly affluent urban society. During the past decade, those rural areas that have been able to attract these activities are among the most prosperous if per capita income is used as a measure of economic well-being. But even as per capita income, on average, has increased, income disparity has also become greater. Rural studies scholars have an opportunity to help both rural and urban interests understand and accommodate such developments.

The public policy challenge, of course, is to create the kind of institutional environment that will result in individual decisions that will best serve group needs. Rural land use laws and regulations provide the institutional framework for the management of rural space. Every level of government—federal, state, local—has influence on the way individuals make decisions about rural land use. It is far from clear that the system we now have is internally consistent or is serving either public or private interests well. There is a great need for serious interchange among representatives of several academic disciplines on this subject—planners, economists, political scientists, in particular.

Traditional rural land use institutions have been structured to accommodate the natural resource related industries of farming, forestry and mining. Traditionally, this was the economic lifeblood of rural communities; the entire pattern of life often was shaped by the necessity to accommodate the traditional primary industry. Rural residents, who wish to preserve a traditional community lifestyle, may seize on land use institutions as a means of doing so. But as an economy and social system evolves, the needs for rural space will also change. Conflicts will arise and must be resolved. Thus the affluent urbanite who desires space in rural areas is likely to be accommodated in one way or another. And those who are responsible for local government may be able to achieve the objectives of their constituents. But this may come at the expense of others—either the taxpayer in general or those who do not have assets or who are not politically empowered. Thus, the management of rural space in the broadest sense becomes an important dimension of the field of rural studies (Oakerson; Fischel; Crosson).

## The management of space in the countryside: Natural resources and the environment

Most of the land area of the United States is in non-metropolitan areas. The best use of space changes with an evolving social and economic system. The urban resident may wish to spend part of the year in a less crowded setting. Urban residents also generate waste or "residuals" of various kinds that can be disposed of, treated or stored in less crowded places. Still, overcoming distance between urban and rural fringe areas is costly. Thus, the prevailing pattern of transportation has great influence on the way rural and urban places and people relate to one another (Lewis, op. cit.). Improved transportation enhances the ability of rural people to commute to urban jobs but also leads to greater land use pressures in the rural hinterlands.

Conflicts over the use of rural space often come to a head in the context of natural resource and environmental policy. Where will the landfill be located? What about the co-existence of the farmer who uses pesticides and rural residents who fear for the health of their small children? These, of course, are exceedingly important problems on their individual merits. But to be fully understood they need to be placed in a spatial context.

The NRSC has seen evidence suggesting that many rural residents are changing in the way they view natural resources and the environment. These people are becoming increasingly concerned about making their communities healthy and attractive places to live and to work. But conflicts remain, sometimes of enormous consequence. The spotted owl and timber dependent communities in the Pacific Northwest provide a dramatic example of such a conflict.

The annual meetings of the NRSC have provided dramatic evidence that rural people are acutely aware of the importance of *government* in their lives. Implicitly or explicitly, they have expressed concern about how they can best relate to federal, state and local government. They know these relationships are constantly changing.

There is a great need for solid scholarship and education on the tier structure of government in rural areas. Specifically, we badly need to re-examine the comparative advantage of different levels of government in addressing the numerous complex problems of the rural United States, some of which have been identified in previous paragraphs. Funding of many federal programs is being reduced even though the requirements for such programs remain in place. Many states face financial difficulties even as they experiment with a range of programs and activities to help rural places. The relationship among rural communities will change as the larger social and economic system evolves. The way communities and areas view each other will affect their ability to address emerging social problems in a cooperative manner (Salamon).

## The response of the ivory tower

The NRSC has not only attempted to become familiar with social, economic and political issues existing and likely to arise in less densely populated areas. It has also concerned itself with the response of the academic community to these issues and problems. How these two can be brought together is the principal question the NRSC is attempting to address.

In providing a preliminary response to this question it is helpful to distinguish between the Land Grant Universities (LGU) and the non-Land Grant Universities (NLGUs). More specifically, we contrast that part of the LGUs that has been mainly concerned with carrying out the mission first identified in the Morrill Act of 1862 during the administration of Abraham Lincoln. According to the *Encyclopedia Britannica* (Volume 18, page 4) during the 19th century farmers believed they needed less of an education suitable for a scholarly elite and more of a "broad, liberal and practical" education for an expanding and changing rural population. The LGUs are also given credit for the idea of the University as a service agency for the whole community. The land grants originally were made to institutions to emphasize agriculture and the mechanic arts. As they have developed, it has been agriculture as a subject that has been associated most frequently with the LGU idea even though most, if not all, LGUs offer as varied a curriculum as is found in most public universities. The connection of the land grant idea with the subject of agriculture is justified because the Schools and Colleges of Agriculture within the LGUs administer most of the funds that have been appropriated by the federal government to further the land grant idea.

Despite the obvious attraction of the LGUs as a vehicle for rural studies, there are at least two reasons they have not addressed rural area problems adequately:

- They are closely aligned with agricultural interests that do not wish for them to diversify.
- They have a comparative advantage to focus on agriculture, the environment and food safety relative to rural studies. The Schools and Colleges of Agriculture have traditionally emphasized natural rather than social sciences. Generally speaking these units do not now have the appropriate disciplinary mix to address rural studies issues.

The NRSC has been impressed with the number and caliber of scholars outside the LGUs, some in prestigious universities, with the interest and capacity to contribute to rural studies. Nevertheless, such scholars are scattered and often isolated from others with similar interests. The response of these scholars to invitations to prepare papers for and participate in meetings of the NRSC has been impressive indeed. We believe this interest and capacity should be nurtured.

In summary, the NRSC finds the problems of the countryside to be diverse and acute. These include problems of rural people, rural communities, economic opportunity, the management of rural space, and problems of local government. The academic response to rural issues and problems has been fragmented and sporadic. Neither the LGU or the NLGU taken independently or together can be said to be providing scholarship comparable to what is forthcoming from other social issues of equal importance such as urban problems, environmental policy, agricultural policy or international trade. Communication across disciplines is inadequate and many opportunities for important work are either not recognized or seized.

Experience has shown that at least three factors are important in bringing forth academic effort.

**Funding.** Academic institutions respond to economic incentives. No doubt there would be greater interest in rural studies if funds existed to finance such efforts. The NRSC does not have funds to disburse for this purpose and its influence in this respect will be of an indirect nature. Furthermore, we do not visualize large sums of money being made available for this purpose from other sources. Some additional USDA-LGU effort may be allocated to rural studies and several private foundations have identified rural issues as an area of emphasis. But even under the most optimistic assumption this is unlikely to be a lucrative field of work for academic people and institutions in the near term.

**Social Need.** In common with other human endeavors, academic people and institutions are motivated by ideals, norms goals and objectives. The NRSC believes there is evidence of a social need for rural studies efforts and that academic people are becoming increasingly aware of this need.

**Intellectual Excitement.** Intellectual effort often follows conceptual breakthroughs and discoveries. Such effort may also result from unsolved puzzles or the existence of anomalies. Neither the NRSC nor others have established a conceptual base which can unify rural studies although some interesting efforts have been made to do so. But the NRSC has identified numerous intellectually interesting problems within several disciplines. By example, it has also demonstrated the relevance and excitement of multi-disciplinary work in rural studies.

Those with responsibility for higher education must decide if they wish to address the obvious need of the rural areas for research and education. If they do, they should decide on that combination of incentives that will move the academy in that direction. Major funding sources are not obvious. But there is demonstrable social need, and rural studies provides excitement for the intellectually curious in numerous disciplines.

I believe that the most effective academic response will involve the Land Grant Universities and the United States Department of Agriculture but will not be confined to them alone. How to bring an effective response into existence remains a major challenge. But the National Rural Studies Committee believes it is a worthy challenge and one which it intends to address in the months and years ahead.

Emery N. Castle, Chair
National Rural Studies Committee

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# The Urban Invasion of the Rural Northeast

Peirce Lewis*

If one were to seek out a geographic laboratory to study the collision of urban and rural culture in America, one could hardly do better than the northeastern United States. It was in the Northeast, after all, that the United States got started as a nation of free yeoman farmers. But it was also in the Northeast where Americans first arrived at the conclusion that their individual and collective future lay not in farming, but rather in cities and towns—and set about to build one of the most elaborate systems of urban places in North America: a host of tiny hamlets and villages—a lesser host of small market-towns with names like Kutztown and Rebersburg—a yet smaller array of medium-sized cities like Reading and Worcester and Albany and Syracuse—and a remarkable number of big sophisticated complicated cities: Boston, Philadelphia, Baltimore, Pittsburgh, Buffalo—and the biggest of all, of course, New York.

That geometric urban system, set firmly on a rural agricultural base, is what geographers have called "the central-place hierarchy" (Haggett, 1983), and it reached its apogee in the Northeast about eighty years ago—just before the First World War. That system is now badly frayed—as is the very distinction between urban and rural culture in much of the Northeast. But to understand how and where that is happening, one must understand the geographic stage on which those events took place.

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*The Pennsylvania State University

### The complexity of northeastern geography

To say that the Northeast is a varied place is to understate the case. The region is one of great extremes: of imperial wealth and desperate poverty—the metropolitan urbanity of midtown Manhattan and the isolation of Appalachian coves—the lush fat farmland of southeastern Pennsylvania set against the ice-scoured barrens of northern Maine. It contains some of the oldest settlements in the United States but also, paradoxically, the newest, and it is no accident that historic preservation is a subject of hot debate throughout the region, and has been so for a long time. It includes some of the most densely populated places on earth—and, for such an urbanized region, a surprising lot of territory that is virtually empty.

In contrast with many other parts of the country, it is a close-textured kind of variety. Midwesterners, for example, are accustomed to traveling long distances and seeing change occur with majestic subtlety. The Northeast is quite different. One can find entirely different worlds cheek by jowl with one another, often separated only by a mountain ridge or a township boundary. One can think of Midwestern geography as a painting drawn on a canvas with broad sweeping strokes. The Northeast is a mosaic, and a fine-textured one at that.

As a consequence, geographic patterns often seem disorderly or bewildering, but in fact there is order in them. In large part, the human mosaic reflects a complex physical mosaic—partly a result of geology and landforms—in part simply a matter of location.

### East and West

Consider location first. The eastern part of the region—from Maine to Maryland—is part of the Atlantic fringe, and faces east toward the ocean and Europe beyond. Its great seaports look to Europe, and its human landscape has always had a more European appearance than the rest of the country. That is true whether one is talking about the red brick row-houses of Boston and Philadelphia, or the countryside, with its charming but archaic English system of metes-and-bounds, which helps make rural Pennsylvania look so wildly different than the gridded landscapes of Illinois or Iowa.

The western parts of the region, by contrast—especially western Pennsylvania and New York—are where the Midwest begins. Pittsburgh and Buffalo look not to the Atlantic, but rather to the Great Lakes and the Ohio River, those great avenues to the continental interior. That east-west division is an elementary fact in the economy and politics of the Northeast. In Pennsylvania, for example, the split has produced disastrous consequences. The balance of political power between eastern and western forces is so even and so poisoned with regional hostilities that there is no secure power base from which to govern the state effectively (Beers, 1980). In consequence, state government has tended to concern itself with inter-regional squabbling, and many pressing statewide issues have simply gone untended.

### Geology, landforms, and human culture *(Figure 1*)*

Geologic history also goes a long way toward explaining the Northeast's complex mosaic of human landscapes (Lewis and Marsh, 1979; also Cuff et al, 1989). The backbone of the Northeast is the Appalachian mountain system, but the Appalachians are far from homogeneous. The uplifted western side of the mountain chain, the region called the Appalachian Plateau, is a complex array of eroded hills, poor in agricultural potential, but rich in the kind of primary resources that 19th Century Americans plundered with unremitting zeal: first lumber, then oil, and finally (and most importantly) coal.

The bituminous coal deposits, especially, were and are enormous: Professor E. Willard Miller of Penn State, an expert in the geography of minerals, has remarked that the Pittsburgh coal seam may have been, in monetary terms, the single most valuable mineral resource ever to be exploited in human history. Those coal deposits served as kindling for the Industrial Revolution of the late 19th Century, and it was largely Pennsylvania coal that fueled the blast furnaces that helped convert the United States into a major industrial power. But that fevered episode of exploitation left much of western Pennsylvania a depressed and ravaged land. For the last half century, western Pennsylvania has suffered an unceasing demographic hemorrhage which helps explain why Pennsylvania's congressional delegation (until 1940 the second largest in the country) has lost almost half of its members, and the state has dropped from second to fifth place ranking among the nation's states.

East of the Appalachian Plateau, the main axis of the Appalachians consists of folded sedimentary rocks, which eons of erosion have carved into a remarkable system of sandstone ridges, and valleys carved from weaker limestone or shale. In central Pennsylvania, that system of ridges and valleys forms a distinctive pattern which, from the air, looks for all the world as if some cosmic rake had been dragged across the state from northeast to southwest. That same trend of

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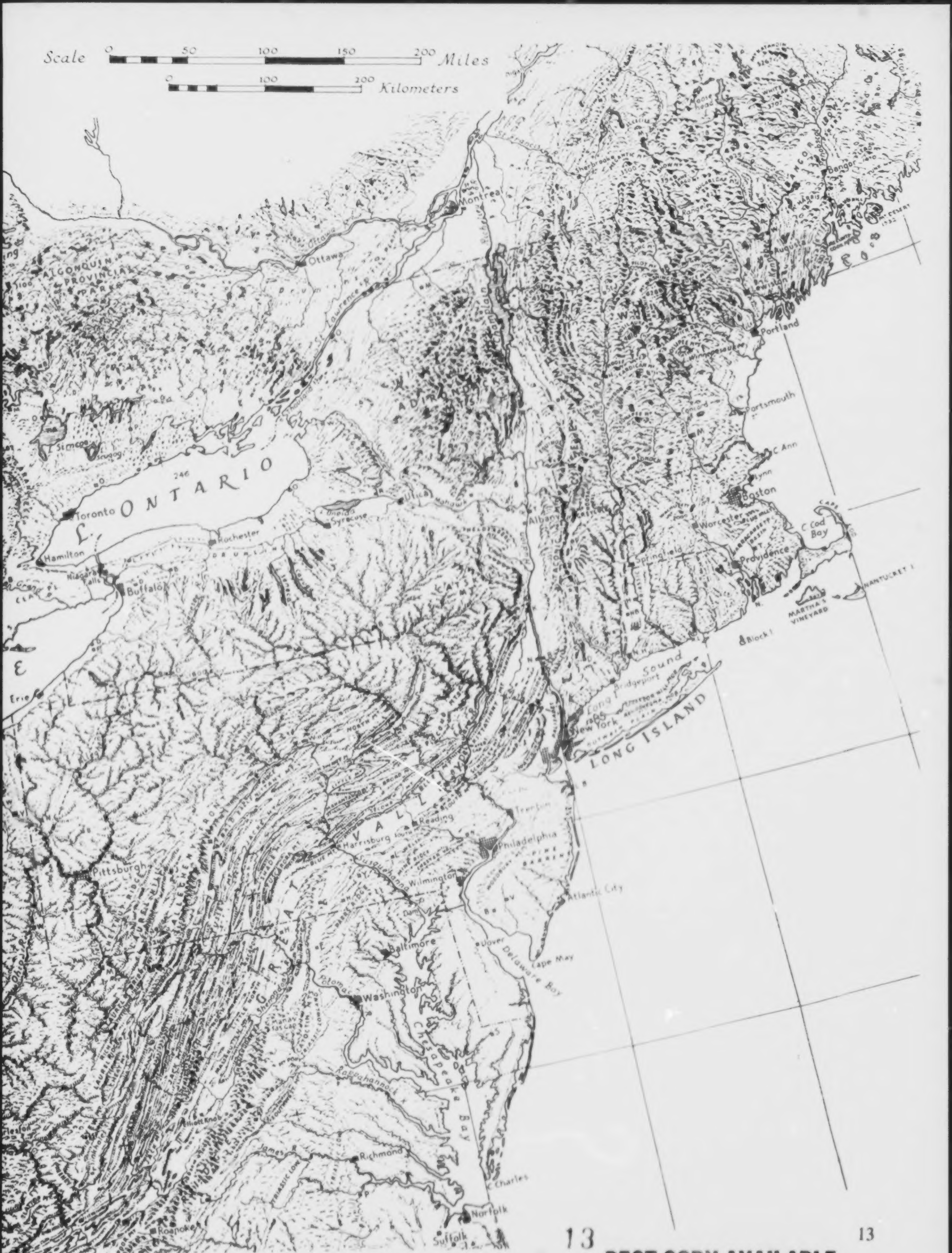
***Figure 1.** *(Opposite)* Landforms of the Northeast. A section of Erwin Raisz's superb map, "Landforms of the United States," 1957. Erwin Raisz Landform Maps, Jamaica Plain, Mass. Used with permission.



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ridges and valleys can be traced northward through eastern New York and on into Vermont and southern Quebec. Much of that "Ridge-and-Valley region" has traditionally been hard to penetrate, and while some of its valleys are remarkably fertile (especially those carved from limestone), they have also been quite isolated. Many of them remain so today—picturesque but marginalized relicts of a bygone time of small farms and small towns.

The easternmost of the valleys, however—the so-called Great Valley—is anything but isolated, and it is a key to understanding the human geography of the Northeast. The Great Valley is part of a major geologic structure that stretches from Alabama to Quebec, and it has traditionally been one of the great continental routes of North American travel. In its 2,000-mile course, it goes under a variety of local names. In Virginia it is called the Shenandoah Valley; some Pennsylvanians call it the Cumberland Valley; in New York state it becomes the valley of the Hudson River, Lake George and Lake Champlain. In Quebec, the northeastern end of the Great Valley is drowned below the sea to form the St. Lawrence estuary.

Cities and medium-sized towns are dotted the full length of the Great Valley, reflecting its long-standing importance as a major artery of transportation. Most of those urban places are located at main intersections of the Valley with routes that cut across it transversely: Roanoke, Virginia, where the James slices across it; Harrisburg and Reading, where the Susquehanna and Schuylkill do the same thing; Albany, at the Valley's intersection with the Mohawk; and Montreal, where the St. Lawrence flows into it.

Still closer to the ocean lies the economic and cultural core of the Northeast: a strip of territory from southern Maine to the Virginia entrance of Chesapeake Bay. This broad Atlantic littoral is the longest settled and the most densely populated part of the region. It is also geographically the most complex.

Most of the region is underlain by a complicated variety of metamorphic rocks. Some are extremely resistant—and form the mountains of northern New England, the Adirondacks, and the stubby remnants of the Blue Ridge—represented in Pennsylvania by the so-called Carlisle Prong (locally called South Mountain) west of Gettysburg, and a second Prong (also called South Mountain), north and east of Reading—the southwestern extremity of upland New England geologic structure.

Closer to the Atlantic, however, the rocks are old and complicated but generally less resistant to erosion, so that they are reduced to a gently rolling plain—collectively called "The Piedmont." In Pennsylvania, central Maryland, and northern New Jersey, the Piedmont rocks have weathered into some of the most fertile soils in eastern North America. The Census of Agriculture regularly lists Lancaster County, Pennsylvania, as one of the ten most productive agricultural counties in the United States. (It is, incidentally, the only county in the East that regularly makes that list). In general, the Piedmont of southeastern Pennsylvania contains the best farmland in eastern North America—and it is in this region where the conflict rages rages most hotly between traditional agriculture and an aggressively expanding urban frontier. This Pennsylvania farmland, especially where it is tilled by Amish and Mennonites, is picturesque and beautiful. Lancaster County, may be the only place in the country where farming is touted as a large-scale tourist attraction. Indeed, tourism in the Amish country of eastern Lancaster County is now growing so feverishly that it threatens to destroy the very agricultural countryside that is its reason for being (Glass, 1979).

> . . . tourism in Amish country . . . threatens to destroy the very agricultural countryside that is its reason for being.

**Farms and glaciers**

To the north, however, is the boundary of glaciation—and the glaciated Northeast is another world altogether. Where glaciers in the Midwest often spread muddy till across the pre-glacial landscape and left behind some fairly creditable soils, glaciers were not kind to future farmers of the Northeast—although they did greatly improve the scenery. The explanation lies in where the glaciers came from. Northeastern glaciers spread south from the Canadian Shield and the mountains of northern New England, where they picked up great volumes of rocks, gravel, and sand—and unceremoniously dumped them over much of New York state and southern New England. North of the glacial boundary in the Northeast, regions of decent soil are very rare, and exceptions to that rule are conspicuous: the Erie Corridor of upstate New York, parts of the Hudson Valley, and the Connecticut River valley of central New England. Elsewhere, the reputation of glaciated New England is notorious and generally accurate: a land whose major agricultural product was rocks—a land which farmers cursed and then abandoned as soon as they could find alternative means of livelihood, usually elsewhere. It is no accident that while most of southern New England was farmed at one time or another in the past, most of it today has reverted to forest. As for northern New England and New York state, only the most foolhardy ever tried to farm the White Mountains of New Hampshire or the Green Mountains of Vermont—much less the ice-scrubbed wilderness of the Adirondacks.

**Human experiments in the Northeast**

But the geographic variety of the Northeast results from more than just the heavy hand of physical geography. Ever since the first European settlers stepped ashore in the 17th Century, those neo-Americans have been experimenting with that geography—trying out new ways to build more satisfactory communities—new ways to wring profit from the earth.

Some of the experiments worked: commercial farming in southeastern Pennsylvania is a conspicuous example (Lemon, 1976). Some did not, as generations of fugitives from New England farms have testified by words and deeds. Some of the experiments brought huge profits to a lucky few but environmental ruin to whole regions. The best (or worst) examples of that, perhaps, are the anthracite valleys of northeastern Pennsylvania. Anthracite (hard coal) was the first really mammoth mineral discovery in English-speaking North America—and there were few rules to guide its exploitation, except the rule of grab-and-run. As soon as people learned how to use it in the early 19th Century, anthracite became America's domestic heating fuel of choice and remained so up until the time of the Second World War. For those who owned the coal mines and those who owned the railroads that hauled coal, profits were immediate and enormous, and coal was mined with little heed either for human suffering or environmental damage. Before the story ended in the mid-20th Century, Pennsylvania's anthracite valleys had been pillaged as savagely and relentlessly as any on the face of the earth. In the process, huge fortunes were made, but future generations were left with the thankless and expensive task of dealing with the environmental devastation (Marsh, 1987).

While some of the experiments worked and others did not, most had mixed results. And most of them shared one feature in common. Americans, seldom a very patient people, rarely waited to see if their experiments would turn out to be successful or not—and went ahead and tried them anyway.

That habit is not unique to our ancestors. Today, in the Northeastern United States, Americans are in the process of designing a new kind of settlement pattern—which combines both urban and rural attributes in a way never before seen in human history. It is still uncertain how the experiment is going to turn out, but it is clear that Americans will not give themselves time to wait and see. A new world is now under construction, built in a war zone between city and country. Similar confrontations are occurring all over America, but nowhere are the battle lines more clearly drawn than in the Northeast—and especially in southeastern Pennsylvania.

## The retreat of rural life

Almost from the time of earliest settlement of English-speaking North America, rural life has been in retreat from urban expansion. The retreat has gone on longer in the Northeast than in any other part of the United States—partly because the region is long-settled, and there has been plenty of time for the process to work itself out—partly because the Northeast has, for most of American history, been a region where cities have flourished more vigorously than in other parts of the country.

The earliest and most decisive rural losses were not the result of urban attrition, but simply a function of poor soil—and the Northeast has more than its share of that. Agrarian life is virtually gone in much of the Appalachian Plateau, southern New England, and the sandy Coastal Plain of southern New Jersey, and all these areas have been reclaimed by second-growth forest. Archaic forms of rural life are hanging on in a marginal sort of way in a scattering of isolated places: ridge-girt valleys in central Pennsylvania, the north slopes of the Adirondacks, and in bits and pieces of what the Federal Government calls Appalachia—mostly in the Allegheny Plateau of western Pennsylvania and southern New York state. All of these places are poor areas, often with a look of abandonment about them—where the major problem is not the threat of encroaching urbanism, but rather the very present threat of bad education and bad nutrition—and even bad television reception (Fitchen, 1991).

The most visible confrontation between rural and urban life, then, is not in New England—and not very often in New York state either. In both those places, the contest has been long decided. Where the battle is now most closely contested, is on the rich rolling Piedmont hills of Pennsylvania, Maryland, and northern Virginia—where an altogether new urban morphology is rudely shouldering itself into some of the best farmland in America, where rural communities are most deeply rooted in the soil.

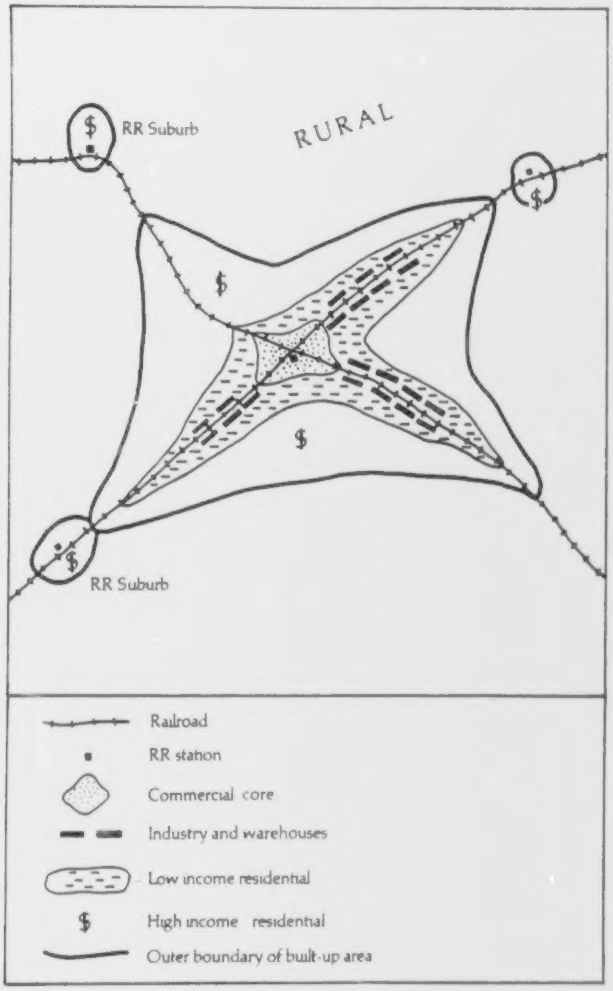
## The decline of the old urban order

Up until the time of World War II, the battle between urban and rural territory had been fought along clearly-marked lines. The order of battle was determined by the geographic form of cities that existed at the time—a time when cities had sharply defined boundaries.

One can read a description of such cities in any sixth-grade geography book written before the War (Fig. 2). That city had a well-defined commercial nucleus, usually called "downtown." Industry was lined up along the railroad tracks, and residential areas were arrayed around the edges—and usually segregated internally along lines of income and race. At the edge of the city, the countryside began, and the boundary between them was sharp. To be sure, there were often suburbs beyond the city's edge—but the suburbs had sharp boundaries too. There was little debate about where the city was, or where the country was.

That form of nucleated city, which Americans founded in great numbers during the 19th Century, was a creature of the railroad. The railroad station

**Figure 2.** The idealized form of the nucleated pre-automobile city (Lewis, 1983b)



was the gateway to the city, and the land with highest value clustered nearby—occupied, quite naturally, by high-bidding commercial establishments. That was where the biggest cities built skyscrapers—visible monuments to the high value of center-city land. Industries located near the railroad track because that was the most economical place to receive raw materials and ship out finished products. Poor people lived in disagreeable areas near the edge of the commercial district, or, more commonly, close by their place of industrial employment, often under squalid circumstances in the shadow of belching chimneys. With the help of trolley cars, affluent people moved to the outer edges of the city, or, if they could afford it, to a nearby suburb. But even suburbanites had to live near railroad stations, and even the most affluent suburbs were necessarily fairly compact. As with the city itself, farmland began along an unambiguous line at the edge of the suburb. What we now call "sprawl" was confined to roadside locations near interurban electric lines. For the most part, country was country and city was city.

### The rise of the galactic city

That arrangement, of course, was blown apart by the Model-T Ford, that democratizer of geography, which allowed Americans of moderate means to live anywhere they wanted, provided only that they had access to an all-weather road and a job somewhere within commuting distance (Lewis, 1987).

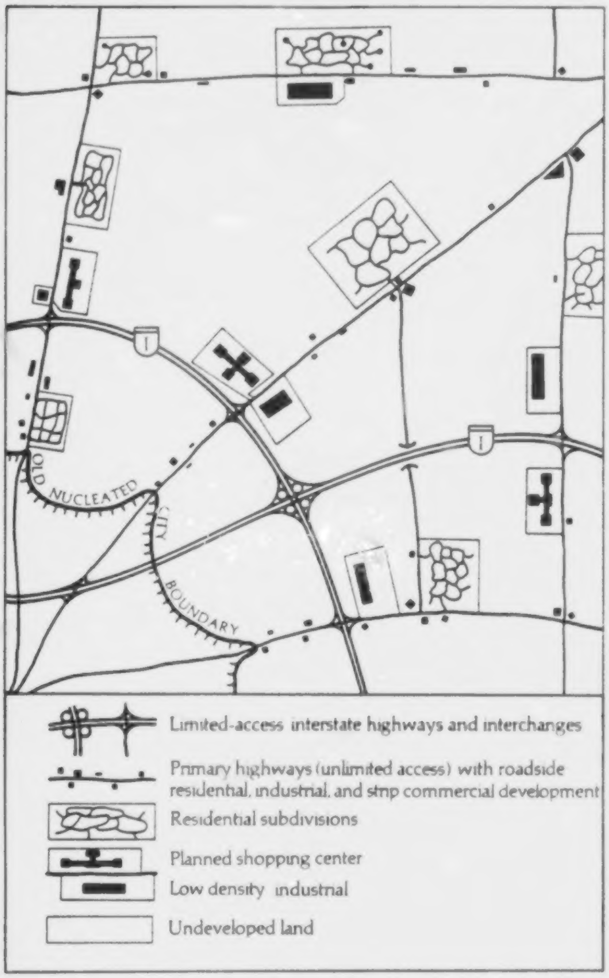
Several things began to happen all at once. First, as railroads lost their monopoly over personal transportation, and access to railroad stations became less important, both nucleated cities and nucleated suburbs began to lose their magnetism. The sharp geographic boundaries between city and country began to grow fuzzy as real estate speculators began to buy up cheap farmland and sell it off as residential lots to middle-class people who had recently acquired automobiles. Shortly after World War II the enterprising Levitt family built Levittown on Long Island—an instant suburb, complete with mass-produced houses. Levittown and its imitators brought choruses of derision from architects, and dismay from social critics (e.g., Keats, 1957), but it was so successful that two more Levittowns were built near Philadelphia, and imitations erupted across the face of the land.

As more and more people moved beyond the urban fringes, into suburbs with increasingly diffuse geographic forms, commercial entrepreneurs followed them in hot pursuit. By the early 1950s, Victor Gruen and others were experimenting with the design of huge horizontal shopping centers equipped with very huge horizontal parking lots, a space-consumptive operation encouraged by the presence of inexpensive land outside the city limits. The new suburbanites gleefully discovered that they no longer needed to go downtown to do their shopping and promptly ceased to do so. Meantime, industries began to move from cramped obsolete buildings on the railroad track to new quarters nearby the newly mobile labor force. From a distance, the profile of these new factories resembled shopping centers—low-slung horizontal buildings, surrounded by vast areas of pavement for employee parking and loading ramps for trucks. When, in 1956, Congress passed the Interstate Highway Act, with its ingenious formula for financing limited-access highways from a mandated gasoline tax, it was like pouring gasoline on an already blazing fire.

In retrospect, it is easy to see what happened. At the time, however, there was considerable confusion for a while as to what was going on. Urban planners complained loudly about what they called "suburban sprawl" as if this new arrangement of people and roads and structure were some kind of unusual event that could and should be stopped—if only Americans could be persuaded to pause and reflect on their collective iniquity. And, because the process was going on conspicuously in southern California, many planners in the east contemptuously dismissed it as some kind of west coast aberration.

But it wasn't an aberration, and it wasn't just suburban either. What Americans were doing, beyond the old urban fringe, was to build nothing less than an altogether new form of city—doing all the things that cities had traditionally done, but arranging them in a new geometric form (Figure 3). I have called this new urban form "the galactic city" (Lewis, 1983a), not because I enjoy coining trendy terminology, but because I know of no other term for it—and it accurately describes the new city that we have built: all the traditional urban elements, floating in space like stars and planets in a galaxy, held together by mutual gravitational attraction, but with large empty spaces in between.

**Figure 3.** The galactic city in its early form, when it was emerging on the fringes of existing nucleated cities. As of the 1990s, however, increasing volumes of galactic urban tissue are developing quite independently of old established cities, and often at great distances from them.


1
1
OLD NUCLEATED CITY BOUNDARY
Limited-access interstate highways and interchanges
Primary highways (unlimited access) with roadside residential, industrial, and strip commercial development
Residential subdivisions
Planned shopping center
Low density industrial
Undeveloped land

Although the whole new system was nourished by a new transportation system of democratized cars and democratized freeways, it is plain that transportation planners simply did not understand what was going on, and certainly did not understand the seismic implications of their own plans. We know that from the notorious example of Boston, where planners decided to build a bypass around the old nucleated city and call it Massachusetts Route 128. What promptly happened is now history: at the interchanges between old roads and the new bypass, high-tech industry began to spring up, attracted by the workforce, money, and brains that had already moved out beyond the suburbs. It was not long before Route 128 (later renamed I-95) became so clogged that it was necessary to build yet another bypass around the Boston conurbation, called I-495: a bypass to bypass the bypass, so to speak. In time, one suspects, I-495 will become another 128 and another bypass will be needed.

> . . . it was necessary to build a bypass around the Boston conurbation: a bypass to bypass the bypass. . .

But neither of those roads really have much to do with Boston—not with the old downtown hub, at any rate. Those roads are nothing more and nothing less than the main street of the galactic city which now spreads untidily from Maine to Virginia and beyond.

Massachusetts 128 has its analogues in the Baltimore and Washington Beltways, and it is hardly coincidental that transportation planners are now debating whether a new *outer* beltway should be built east of the city across the swamps of tidewater Maryland, or through the hunt country of Loudoun and Fauquier Counties, Virginia. Meantime, the tone of that debate among the political establishment that lives in Fauquier County makes it clear that people know that bypasses aren't bypasses any more—but instead are the arteries for a new kind of city.

In some ways, this phenomenon was foretold in the prescient book, *Megalopolis* (1961), wherein Jean Gottman described the "conurbation" of big old East Coast cities: Boston, New York, Philadelphia, Baltimore, and Washington. But while *Megalopolis* provided the original spark for this new urban growth, the new city has exploded far beyond the margins of *Megalopolis*, no matter how generously we define it. Adams County, Pennsylvania, for example, whose county seat is Gettysburg, used to be a quiet conservative rural area of fruit farms, cornfields, and a sprinkling of rural villages. The main action in Biglerville, for example, used to be direct sales of apple butter from Musser's Farm, and midday chicken dinners with mashed potatoes, gravy, and chow-chow for $4.95 at the Biglerville Hotel. In the last five years, however, the galactic city has arrived in Adams County. Rural land prices have skyrocketed, and so have real-estate taxes. The roads, designed for country traffic, are clogged with commuters every weekday morning and evening—and weekends are no better, as fleamarkets and garage sales erupt along those not-so-countrylike roads.

Where do the commuters work? Very few go to nearby Gettysburg, whose main business continues to be selling hamburgers and martial souvenirs to tourists along the commercial strip of US Highway 15. Most of the commuters head in the *direction* of Washington—although very few really go that far; Washington, after all, is 75 miles away, and the traffic is fierce. Their destination, most commonly, is a new galactic city which has recently erupted along the axis of Interstate 270, the self-styled "Technology Corridor" which connects the Washington Beltway with Frederick, Maryland, and the Great Valley.

Not so long ago, I-270 was an unsurprising four-lane interstate highway, with a wide grassy median, traversing some of the handsomest agricultural country in the United States. The state of Maryland, admirably conscious of roadside amenities, had planted flowering trees along the margins; it was a nice road for a nice Sunday drive. Today, after fifteen years of continual "upgrading", I-270 has begun to look like the New Jersey Turnpike through Perth Amboy, with six express lanes, four local lanes and a skein of on-ramps, off-ramps, concrete traffic dividers, and large signs warning motorists not to drive on the shoulders, and to slow down for construction zones ahead. Significantly, the interstate is now being lined with sound barriers to protect the tranquility of new residents who think they live in Frederick County, but in fact are living in a galactic city which has no name, merely a collection of ZIP codes.

Meantime, Frederick itself, a few years ago a depressed and somewhat seedy railroad town, is now sporting new paint and new prosperity. North Market Street is bedecked with flowers and lined with chic new restaurants and fern-bars, catering to young childless couples who drive BMW's and Mercedes convertibles. Much the same sort of thing is happening, on a smaller scale, to the town of Shepherdstown, West Virginia. Shepherdstown is 60 miles from Washington, much of it over twisting mountain roads so that Washington, as an urban place, is socially, politically, and economically irrelevant to the people who are living in the town's "suburbs" or, increasingly, in houses on one-acre plots along the once-rural roads between Shepherdstown and Sharpsburg and Charlestown and a host of smaller places in the West Virginia panhandle. The residents of these houses are city dwellers, but the center of that city is not Washington; indeed, there is no *single* center to that new galactic city they inhabit. They live in one place, they work in a second place, they shop in yet a third or fourth or fifth—and they travel between these places by high-speed roads across country which still contains farms and farmers.

In short, this new galactic city is a different sort of urban creature than Americans have ever seen before. And, because it doesn't spread across the rural landscape along a solid front the way cities used to, many people—scholars included—fail to recognize it for what it is—a genuine city. But it performs all the functions that American cities have always performed: commercial, industrial, residential, and social. What is different about it is its geographic arrangement, which to many casual observers (and even some of its inhabitants) seems disorderly and even unsettling.

But just like the nucleated city before it, this galactic city contains a good deal of order, and a good deal of internal variety. Scholars and critics would do well to recognize that internal order, rather than denouncing the whole thing as "sprawl," or, more commonly ignoring it.

## Four elements within the galactic city

There are at least four internal features to the galactic city that deserve special attention if we hope to make any sense of what is happening along that urban-rural interface today.

The first, and most basic element of the galactic city, is its internal transportation system. We should stop thinking about high-speed highways as merely big country roads which allow cars and trucks to move rapidly and uneventfully across a greensward of rural landscape. They're not. They are, at least potentially, urban arteries—some better developed than others. I-270 in Montgomery County, Maryland, and Route 128 in Massachusetts are, among other things, the main streets of primary industrial districts.

A second feature of the new galactic city is a remarkable degree of internal commercial clustering. Despite the vast geographic extent of the galactic city, despite its generally low density of people and buildings, and despite its extremely horizontal form, there is plain evidence that the tendency toward urban nucleation has not disappeared, but is simply being resurrected under new geographical circumstances. These new urban nuclei tend to be clustered at the intersection of main arterial highways and that is hardly surprising: urban clusters have been forming around the intersection of important routes since the founding of Babylon. In contemporary America, the main crossroads are where interstate and primary highways intersect.

There are many such intersections and many such clusters within the Northeast's galactic city. It will suffice here to mention two examples. One is Valley

Forge where the Pennsylvania Turnpike has an interchange with two primary US highways (US 30 and US 202), and a major interstate link, the Schuylkill Expressway (I-76) which leads to center city Philadelphia. The other (and more egregious) example is Tyson's Corner, where the Washington Beltway intersects I-66 to Charlottesville, two limited access highways to Dulles Airport, and Virginia Route 7, which is the main highway between the Washington Beltway and the affluent hunt country of northern Virginia. Tyson's is, to put it mildly, very accessible providing, of course, one owns an automobile.

Tyson's deserves special mention, for it is one of the most astonishing bits of urban geography to emerge in the United States within memory. As recently as 1975, Tyson's Corner was just what its name implied: a country cross-road on the fringe of Washington's Virginia suburbs. By 1990, Tyson's had sprouted an arresting collection of post-modern skyscrapers, not one but two of the biggest shopping centers on the east coast, a large number of corporate offices, half a dozen major department stores, an array of shops, restaurants and warehouses, and a bewildering complex of on-ramps, off-ramps, roads, and multi-decked parking lots. With the exception of downtown Washington itself, Tyson's is the largest assemblage of commercial space in the entire capital area, and by itself contains more commercial floor space than all of downtown Miami (Garreau, 1991).

> . . . Tyson's . . . contains more commercial floor space than all of downtown Miami.

Joel Garreau of the *Washington Post*, one of the most perceptive observers of America's changing geography (see esp., Garreau, 1981), calls things like Tyson's and Valley Forge "edge cities," and, at latest count, identifies *eighteen* such clusters in and around the Washington metropolitan area. Edge cities, Garreau says, represent "the biggest change in 100 years in how Americans live and work." (Garreau, 1988, 51). Whether that is true or not, they are springing up like patches of urban asparagus around the edges of Atlanta, Dallas, Los Angeles, and the fringes of San Francisco Bay—to mention only the biggest and most flamboyant examples (Garreau, 1991).

Joel Garreau is a talented and perceptive observer, and his writings are among the most authoritative and lucid accounts of new American urban forms that I know. But I would take issue with his choice of language: the new clusters like Tyson's and Valley Forge are not cities in their own right, but merely parts of the much larger galactic city which extends over several thousand square miles—not just in the Northeast, but in many other parts of the United States.

A third kind of district within the galactic city is industrial, but these new industrial districts commonly look more like country clubs than dark Satanic mills. The reason for the difference is partly architectural, partly functional. The great smokestacks and Bessemer converters that are associated with 19th Century industry are gone for the simple reason that a good part of American industry has shifted from making steel to making computer chips. And, since most of the galactic city's factories were built after World War II, most are designed vaguely in some variant of the International Style, and tend to look like consolidated high schools (which were often built at the same time according to the same stylistic rules). And, while industrial enterprises become less immediately noxious, management has increasingly sought to ingratiate itself with local government and its residential neighbors by planting large expanses of flower beds and green lawns, identifying themselves with modest ground-signs in Helvetica lettering, and referring to the grounds as a "campus." Some large industrial operations, especially those combined with company offices, have become corporate symbols, and are landscaped with such opulence that they come to resemble golf clubs or vacation resorts. But the bucolic appearance is deceptive. These horizontal factories, set in the midst of rolling green countryside, are integral parts of the new galactic city—just as the old smokestack industries were an integral part of the 19th century nucleated city.

The fourth element of the galactic city is residential and it is the part that causes lovers of traditional farm scenery the most acute gastric pain. It is the kind of residential settlement that occurs when farmers sell off two or three or five-acre plots of roadside frontage to expatriate urbanites, who then build ranch houses, raise families, and plant large lawns which they mow with John Deere garden tractors and tend with loving care. Nearly every paved road from southern New Hampshire to central Virginia has at least a few such plots along it, and along some roads in southeastern Pennsylvania, houses are arrayed so closely along the rural roadside that they seem the modern American equivalent of a German *strassendorf*—the traditional medieval form of European rural villages. Seen from a low-flying airplane, those houses on five-acre plots are one of the most conspicuous features of the human landscape. There must be tens of thousands of them, and from the commuter plane that I frequently fly from the University Park Airport at Penn State to Philadelphia or Baltimore or Washington-Dulles, those roadside houses are almost never out of sight.

Except in anecdotal terms, we know very little about the residents of those houses, even as a statistic. We know—because we can see them from the airplane window—that they are very numerous. But we don't even know just how many there are—because the Census hasn't found a way of counting them yet—and not for want of trying. The Census can't count them unless they first define them and so far that has proved impossible, at least for statistical purposes. They remind us of Justice Brennan's celebrated remark about pornography, that it was hard to define, but he knew it when he saw it.

These houses along the rural roadsides are collectively treated as residential pariahs. Environmentalists denounce them as space-consumptive nuisances; planners deplore them as ecological disasters; officials in local government wring their hands when they try to find money to provide them with municipal services at reasonable cost. Most students of rural culture simply don't discuss them because they are too urban, and urbanists usually ignore them because they are not urban enough.

Nobody, in my view, has discussed this phenomenon better than Robert Riley, whose writings about rural America are among the most sympathetic and perceptive I know (see e.g., Riley 1985). Riley, who has described several forms of such residential settlement in rural areas of east-central Illinois (Riley, c. 1990), calls this assemblage of roadside houses "the new rural landscape," but immediately hedges. "The new rural landscape," Riley says, "is a residence, and occasional workplace, for people whose livelihood depends not at all upon the land per se." (Confronted with a Massey-Ferguson combine, for example, most residents of these scattered houses would know nothing about it—except perhaps how to turn on the stereo and a/c in the cab.) In Riley's view, this new form of settlement is a radical fundamental departure from age-old forms of rural life. In Riley's words again: "the humanized nonurban landscape, throughout human history, has been almost completely shaped by people who worked and lived on that land. The new nonurban landscape, in the United States at least, is being shaped largely by people to whom *the rural landscape is nothing more or nothing less than an alternative residential location*. Whether they be commuters, retirees, or desktop publishers earning a living from their den, to them, *the rural landscape is not a productive system or a way of life, but a locational amenity*." (Riley, c. 1990, 3, emphasis added).

How do we go about classifying or even describing the people who inhabit these thousands and thousands of houses? The Census, of course, has tried repeatedly, and for a time took evasive refuge in the *portmanteau* term, "rural non-farm." I would suggest cutting the verbal Gordian Knot, and calling these people what they really are: genuinely urban people who cannot afford five acres of well-groomed lawn in Bryn Mawr or Chevy Chase, but can afford it in "rural" Pennsylvania or Maryland or upstate New York. But to call these people "rural" is to stretch the term beyond the limits of any reasonable lexicon. They are urban in social outlook, urban in their personal relations, urban in the way they make their living. They are, I submit, nothing more nor nothing less than residents of the galactic city.

If I am right on that score, we must (along with Robert Riley) face up to the fact that much of the land in what we call "rural America," at least in the Northeast, is less important for its farm produce than as a residential stage set. That may be a distasteful idea to many admirers of rural America, but that is the way it is—at least in the view of many of the new inhabitants. And if present trends continue, that is the way more and more of "rural America" is going to be. The reason is simple: we are not looking at just another bit of "exurban sprawl;" we are looking at a large and predictable part of the galactic city. That city and its urban inhabitants are not going to go away, even if we wanted them to. The obvious course for academics, it seems to me, is to do what academics always do when they confront a new and unfamiliar circumstance: to describe it as accurately and dispassionately as they can, and then try to understand how it works.

That will not be easy, although the process of analysis is now under way. Academics have been fairly slow to get their minds around this business of the galactic city. Much of the best writing about it has come from journalists like Joel Garreau and John Herbers (1986), from landscape architects like Robert Riley, and from two brilliant historians of suburbs, Robert Fishman (1987) and Kenneth Jackson (1985). Thomas Baerwald (1978), in a seminal paper on the Minneapolis beltway, concluded that the new agglomeration of people and buildings presaged the design of a wholly new kind of city. Erickson and Gentry (1985) described similar events along the Baltimore beltway. More recently, John Fraser Hart (1991) has written about what he calls "the perimetropolitan bow wave"—the precursors to urbanization that are found on the outer fringes of big cities like New York. And, as always, J. B. Jackson provides us with the most thoughtful reflections on the meaning of these changes in our ordinary landscapes. (Jackson, 1970, 1980, 1983, 1990.)

In my view, this kind of study is overdue. The galactic city has been under construction in the United States since the mass adoption of the automobile in the 1920s, and it was pushing aggressively into rural territory all over the Northeast by the end of World War II (Lewis, 1987). Now, almost half a century later, traditional forms of rural life have totally disappeared in much (if not most) of the Northeast; in much of the remaining territory it is an endangered species. About ninety percent of the region's population, I would guess, already lives in the city—a large number in the old nucleated cities and suburbs, of course, but an increasing number (perhaps a majority) in some part of a spreading galactic city that bids fair to dominate the region.

Language is important. We can't talk about phenomena unless we have the vocabulary to describe them—and many observers still cannot agree on what to call this new amorphous form of urban geography. As we try to come to grips with the question of urban pressures on the rural Northeast, it is crucial, I think, that we stop using worn-out terms like "suburban sprawl"—terms that carry all sorts of obsolete intellectual freight along with them, and get in the way of our understanding what is really happening along the frayed boundaries between urban and rural America today. Those ranch houses along those winding macadam roads in southeastern Pennsylvania are not just scattered bits of exurbia. Those freeways are not just big fast roads. They are inherent parts of the galactic city. The sooner we realize that fact, the sooner we can come to terms with it.

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# Rural Land Use Planning in the Northeast: Diversity Amid Ambiguity

Mark B. Lapping*

The rural areas of heavily urbanized regions are among the most peripheral and conflict laden in the nation. These are very often places of transition, almost always demonstrating movement away from traditional land uses, economic, and settlement patterns into different forms of each. In many ways just what such places are to become is new to us, both in terms of form and function as well as in meaning and significance. In a section of the nation as textured as the Northeast its rural areas reflect a variety and complexity consistent with a region witnessing large-scale economic restructuring and sustaining profound demographic and political changes. Some rural areas within the Northeast are declining places whose fortunes have long been deteriorating. In many instances their natural resource endowments, often the basis of historical development, have been depleted or made redundant by changes in the global marketplace. Other areas are relatively stable, if not growing, and reflect a certain level of diversity in the local economy. Subregions like the Adirondacks, Tug Hill, the Pinelands and "the Northern Forest," to name but a few, are subject to a growing tendency on the part of the State to protect large, complex ecosystems by limiting development. And then there are still other places, most notably on the fringes of metropolitan areas, which are truly "contested territories" undergoing great change and considerable disequilibrium. For planners and policy makers these different types of places—and they are much nuanced—have meant a legacy of rural land use planning which has tended to be highly idiosyncratic in nature. The ambiguities which abound in Northeastern rural planning are matched only by the more profound ambiguity of being "rural" in this most "urban" of regions.

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While many conceive of the Northeast as very largely composed of urban and suburban places, substantial hinterland areas abound and define much of the region's geography. Locally important and viable areas of farming exist and no region of the nation is more heavily forested than New England. Indeed, even New Jersey, the most heavily urbanized state in the country, is over forty percent forested. Large pockets of wildlands can still be found, often within an easy day's drive of some of North America's largest cities, and the recent counterurbanization of population into many small towns and rural counties has been well-documented.[1] If the overwhelming majority of the population of the Northeast is urban and suburban, there are still many who live in the region's hamlets and villages, as well as in the open countryside.

The diversity of rural land use planning problems in the region can best be appreciated through a focused assessment of three types of problems—the protection of large-scale regional resource systems, the nature of the land use planning system in a predominantly rural state, and the farmland retention problem on the urban/rural fringe.

## Of forests and wildlands

The Northeast contains significant wildlands, wetlands, and riparian resources. Many of these areas have been subject to public scrutiny for years. While federal public ownerships are not as significant as in other sections of the country, most notably the West, national forests exist throughout the Northeast. As is the case elsewhere, such lands are managed in ways consistent with "multiple-use, sustained yield" principles, though non-priced services and goods, especially as they relate to recreation and watershed uses, tend to be especially significant within the region. Many of the largest and most important complex ecosystems within the area are not under federal control and management. Rather, they reflect a mixed public-private land-ownership pattern with state-level planning providing land use guidance. New Jersey has sought to protect its "Pine Barrens" region through the Pinelands Commission, which has pioneered in the use of the "transfer of development rights" technique to deflect growth and development from important agricultural and wetlands resources into built-up areas.[2] Maine has utilized its Land Use Regulatory Commission to control growth in its vast unincorporated townships.[3] New York State, however, has the most experience with planning in these areas, most notable through the Adirondack Park Agency and the Tug Hill Commission.

The Adirondacks constitute the largest undeveloped area in the Northeast. While forestry, mining, and subsistence farming were historically important, the area began to grow in importance as a recreational region in the latter part of the nineteenth century. Because of over-harvesting and other abuses, the State of New York—largely through pressure brought by some of the wealthiest American families who summered in the area—sought to protect its lands in the region through the passage of the "Forever Wild" amendment to the New York State Constitution in 1894. Additional acquisitions of state land were made throughout this century and by 1972 the Adirondack Park comprised six million acres, approximately forty percent of which was owned by the state with the remainder in private ownerships, large and small. Development pressures, brought about by enhanced highway access, led Governor Nelson Rockefeller to appoint a Temporary Study Commission on the Future of the Adirondacks in 1968.[4] The Commission found the region "in crisis" and suggested that "the state develop an overall, long-range plan for all the public and private land in the park and exercise a degree of control over the uses to which these lands may be put."[5] Out of this and other recommendations came the establishment of the Adirondack Park Agency (APA) in 1971. What has ensued since is one of the longest running land use controversies in the Northeast. The Adirondack Park Agency was created to protect the land resources, both public and private, in a region with a small year-round population base typified by chronic unemployment, deteriorating housing stock and services, and few perceived options other than tourism and recreational development. The Park Agency has, even according to friendly critics, been "indifferent to economic development." It has zoned areas "industrial solely for existing industries and not for prospective ones" and placed much of the park "in the most restrictive land use categories," perhaps with too little regard for local tax revenues.[6] Some have charged that the Agency is arrogant and that it reflects the interests of urban recreationalists and wealthy preservationists at the expense of local Adirondackers. Suffice it to say that the greatest single challenge to the Agency came with the Lake Placid Winter Olympics in 1980. While the Agency did not support the massive development and spin-offs which resulted from the Winter Olympics, it largely acquiesced in the face of substantial political and economic pressure. In contrast, in most areas of the Park, the APA plan has restricted development and reflected the over-all "state interest" to protect the lands and waters of this unique area. Critics of this strategy abound and in 1990 Governor Mario Cuomo's Commission on the Adirondacks in the Twenty-First Century issued its report which called for even more restrictive controls on growth and development within the region.[7] Arguing for major new land acquisitions by the State of New York, a new Park Administration and Park Service, the plan also calls for greater attention to local planning and support for community economic and development programs in an effort to "balance" concerns. The proposal was to be supported by bonds, user fees and an anti-land speculation tax modeled, in part, on Vermont's pioneering capital gains tax. While the governor has not exactly "walked away" from these new proposals, they have not been implemented. The case of the Adirondacks indicates, among other things, the types of roles which state government is called upon to play in regions of large scale and important natural resource characteristics. Further, the continuing APA controversy is indicative of the kinds of problems and issues which emerge in areas of great beauty, environmental sensitivity and importance, and which are also places of long-standing economic and social decline. While too often seen as an "environmental quality versus social equity" problem, the polarization and upheaval created by this regional rural land use planning system has divided communities, the region, and the state along cleavages which have rarely served to generate dialogue among the major stakeholders.[8]

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[1] See, for example, L. Ploch, *Turnaround Migration - A Research Challenge* (Orono: Dept. of Agricultural and Resource Economies, University of Main, A.R.E. - 324, 1979); L. Ploch, "Effects of Turnaround Migration on Community Structure in Maine," in D. Brown and J. Wardwell, eds., *New Directions in Rural - Urban Migration* (New York: Academic Press, 1981); T. Steahr and A. Luloff, *The Structure and Impact of Population Redistribution in New England* (University Park: Northeast Regional Center for Rural Development, Pennsylvania State University, Report No. 39, 1985).

[2] B.R. Collins and E.W.B. Russell, eds., *Protecting the New Jersey Pinelands* (New Brunswick: Rutgers University Press, 1988).

[3] Maine Land Use Regulatory Commission, *Comprehensive Land Use Plan* (Augusta: LURC, 1983); M. Lapping, "Rural Development and Land Use Planning: A Forestry Perspective," *Journal of Forestry*, 80:9 (Sept., 1982).

[4] R. Liroff and A.A. Davis, *Protecting Open Space: Land Use Control in the Adirondacks* (Cambridge: Ballinger, 1981); W. Verner and M. Lapping, "The Future of the Adirondack Park," *Journal of the American Institute of Planners*, 37:4 (July, 1971).

[5] Temporary Study Commission, *The Future of the Adirondacks* (Albany: TSCFA, 1970), Volume 1, p. 28.

> The Adirondack Park Agency,
> created to protect land resources,
> has been "indifferent
> to economic development."

Reflecting upon the problems of the Adirondack Park Agency, the Tug Hill Commission took a very different approach as another New York State agency charged with the role of land use planning in a major rural hinterland area of the state.

Tug Hill, lying west of the Adirondacks, east of Lake Ontario, north of Syracuse and south of the Canadian border, fits the description of "upstate" given to it by long-time resident and writer/critic Edward Wilson. With a limited agricultural and forestry potential, Wilson noted that the region was long-controlled by an absentee landowning class which included his ancestors who "retained a feudal mentality" toward the people and the land.[9]

Like the APA, the Tug Hill Commission started as a temporary study commission. Founded in 1972, it was composed of thirty-nine townships whose nine-town core communities began operating as a "cooperative rural planning" commission in 1974. The essence of the planning effort has been to support rather than to supplant local government,[10] quite a departure from the early years of state land use planning in the Adirondacks. Still, the Tug Hill Commission reflects "state concerns" for the preservation of the environmental quality and integrity of the region. A greater degree of balance has been retained by the Tug Hill Commission, however, and its support by local government has been strong, in marked contrast to the experience of the Adirondack Park Agency. Yet, "real tests" for the Tug Hill Commission have been few given the "off the beaten track" location of the region and the low intensity nature of its land market, the expansion of Camp Drum notwithstanding. How the system would react to a major threat to the region's environmental quality simply is not yet known. Importantly, however, Tug Hill differs from the Adirondack planning experience in both "form and substance." The Tug Hill approach has been cooperative, voluntaristic and low-keyed. The APA has been heavily top-down, mandatory and, at times, heavy-handed. While the Adirondack Park Agency has very largely stuck to its state-level agenda of environmental protection through land use planning, Tug Hill has pursued this same goal but in a way which has stressed the long-term sustainability of local options and community development. The different approaches have elicited different types of responses, though in each case it was the state, rather than regional or local authorities, which defined the goals, established the agenda and process, and mandated performance.

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[6] Liroff and Davis, *Protecting Open Space*, p. 130.

[7] Commission on the Adirondacks, *The Adirondack Park in the Twenty-First Century* (Albany: CATC, 1990).

[8] P. Gore and M. Lapping, "Environmental Quality and Social Equity: Wilderness Planning in the Adirondacks," *American Journal of Economics and Sociology*, 35:4 (Fall, 1976).

[9] E. Wilson, *Upstate* (New York: Farrar, Straus, and Giroux, 1971), p. 12.

[10] C. Dyballa, L. Raymond, and A. Hahn, *The Tug Hill Program: A Regional Planning Option for Rural Areas* (Syracuse: Syracuse University Press, 1981); E.R. March, *Cooperative Rural Planning - A Tug Hill Case Study* (Watertown: Tug Hill Commission, 1981).

> Incremental development has fragmented ownerships into non-economic holdings, . . . and poor forest practices continue to erode soils, pollute waters, and undermine the economy.

While the forestlands of the region are vast, they are troubled. Incremental development has fragmented ownerships into non-economic holdings, acid rain threatens the biological diversity and quality of the forest ecosystem, and poor forest practices continue to erode soils, pollute waters, and undermine the long-term viability of the local economy. The "North County" or the "Big North" is a forest of some thirty million acres including much of Tug Hill, the Adirondacks, northern-most Vermont and New Hampshire, and the vast majority of Maine. Taken together, it is a hardwood forest of unparalleled scale and quality, and is larger than Yellowstone by a factor of thirteen.[11] Because of these continued threats to the great woods of the North, in 1988 Congress established, in cooperation with the region's governors, and under the auspices of the U.S. Forest Service, the "Northern Forest Lands Study" which had four major goals: creating a vision for the Northern Forest, elaborating important regional resources, suggesting strategies and mechanisms to protect important resources, and proposing a comprehensive scheme—not a plan—for "integrated land conservation in the northern forest involving the cooperation of all levels of government and the private sector."[12] Unique in the history of rural planning in the Northeast in that it spans four states and seeks to tie together public and private concerns at all levels, at bottom the Northern Forest Study is about land conservation. The final report of the Study calls for "strong public policy ... to address land fragmentation and development" built upon an effort which is "comprehensive and integrated" and whose essential elements must include "land use planning and regulation by local and state governments," acquisition of easements and fee-simple holdings to protect important lands, incentives to preserve private lakes which are open to the public, and educational and local economic development efforts to preserve the region's "working landscape."[13] This recent effort at rural land use policy is not only concerned with maintaining an economically and environmentally viable forest products industry, but also the retention of regional character. Paul Bofinger, a member of the New Hampshire delegation to the Governor's Task Force, and President of the esteemed Society for the Protection of New Hampshire Forests, put the matter squarely when he said of this issue that,

> It's not just the pretty scenery and flowing waters. The character I'm speaking of is a way of life—the people in their checkered shirts and their boots and their pick-up trucks. You know what I mean. We have to preserve that. We don't want to bring in a lot of conventional tourist facilities and put these people to work as chamber-maids for minimum wage. We've done enough of that, in other places, right? Let's face it. What we have here is a wonderful wood resource, and to preserve the character of the North Country we have to learn how to use it better. We have to create the markets and jobs right here to protect that way of life.[14]

The protection and retention of important wildland and forestland resources has, then, become an important element in the rural land use planning mosaic of the Northeast. Whether under the auspices of state or federal governments, and usually combining concerns about management and land use on private as well as publicly-owned lands, these efforts all have a focus which reflects concerns and agendas expressed at levels beyond, but usually also including, local and grass-roots constituencies. In a sense, the futures of these profoundly important regional ecosystems have been "socialized" to the point that stakeholderships in the rural land use planning and policy process and debate are far-flung and even transcend the region's boundaries.

### Rural land use planning in one state

In many ways, Vermont is the quintessential rural state.[15] Until very recently the population of the entire state was less than a half million people who lived, almost exclusively, in small cities, hamlets and villages, as well as in the open countryside. The state's largest community, Burlington, barely qualifies as a standard metropolitan statistical area. With a legislature still composed more of "farmers than lawyers," Vermont has come to be seen as the way the rural Northeast used to be. Actually, the transition away from the bucolic ideal that so many wish to see in Vermont took place a long time ago. As one student of Vermont history has noted, "the railroads brought the end to self-sufficiency on the farms, the economic influence of the towns that became depots, and served as a magnet to draw many of the hill farmers from the back beyond to the new growth around the railroad centers. From the 1870s Vermont had passed from a homestead culture to a village-town culture. This early change is why today's hunter will often find a stone wall buried in timber a hundred years to the stump. The contemporary Vermont countryside is a graveyard of abandoned homesteads."[16] The transition from agriculture to a modern rural, non-farm, diversified economy has not gone unnoticed by policy-makers. Indeed, as Andrea Rebek has shown, this change in society and economy was accompanied by deliberate strategies to turn the unique landscape of Vermont into a tourist and recreation amenity as early as the turn-of-the-century.[17] Vermonters understood, early on, that rural land mattered mightily whether as farmland or as a tourist destination. If Vermont is no longer predominantly agricultural, it is still profoundly rural and it is this fact, together with a strong desire to protect an economy and society which reflects the scale and density of rural living, which defines and informs rural land use planning policy in the state.

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[11] J.G. Mitchell, "Mountain Views, Bargain Prices," *Harrowsmith* (July/August, 1989), pp. 34-45.

[12] S. Harper, L. Falk, and E. Rankin, *Summary of the Draft Report* (Rutland, Vt.: Northern Forest Land Study, 1989).

[13] S. Harper, L. Falk, and E. Rankin, *Northern Forest Lands Study: USDA Forest Service and Governor's Task Force on Northern Forest Lands* (Rutland, Vt.: USDA Forest Service, 1990), pp. 84-85.

[14] P. Bofinger, quoted in Mitchell, "Mountain Views," p. 39.

[15] See F. Bryan, *Politics in the Rural States* (Boulder: Westview Publishers, 1981).

Elsewhere I have argued that rather than seeing Vermont's famous land-use planning policy program as focused on land use, it is actually oriented toward "landscape."[18] While the two are very obviously intimately connected, the subtle difference is important, I think. Land use policy is largely directed to matters and concerns about how land is used, conflicts and complementaries between types of uses, and the "rules" governing land use conversion and change. While landscape planning certainly includes all that land use planning involves, it is more inclusive and has a stronger focus upon aesthetic issues and performance standards. As rural areas transition out of agriculture, forestry, mining, fishing and recreation as the basis of their economics—the "working rural landscape"[19]—they will give greater attention to landscape planning as their orientations shift to reflect economies based upon retirement homes and communities, tourism and recreation development, and manufacturing and services. Seen in this context, Vermont's pioneering efforts in enacting one of the nation's first beverage container laws, mountaintop development limitations, backroads restoration, a scenic rivers and streams system, and highway sign prohibitions, are as significant as its more "mainstream" planning tools in addressing the land-related issues it faces.

The centerpiece of the rural land use planning system in Vermont is Act 250. Enacted into law in 1970, Act 250 sought to respond to poorly designed and hastily built large-scale developments (particularly groups of second homes in ski areas) perceived to have created both environmental and fiscal problems for local communities.[20] The law establishes standards of environmental quality for large-scale development and large land subdivisions. Act 250 requires that all large-scale projects be reviewed on ten criteria. Most projects falling under the law are those of ten or more housing units by the same applicant within a five-mile radius or subdivisions of ten or more lots of less than two acres each. Developments of fewer than ten units or ten lots are exempt from the permit process, and until March of 1984, subdivision of more than ten lots with each lot larger than ten acres were also exempt. Act 250 also applies to nonresidential construction involving ten or more acres in towns with zoning regulations and one or more acres in communities without zoning. Because of the time and expense involved in project review, Act 250 encourages small-scale developments and subdivisions as well as large-lot subdivisions.[21]

The ten criteria under which the Act reviews project proposals include "will not result in undue water or air pollution," "will not place an unreasonable burden on the ability of the local government to provide municipal or government services," and "will not have an undue adverse impact on scenic beauty, aesthetics, historic sites, rare and irreplaceable natural areas, endangered species, or necessary wildlife habitat."

An example of how this latter criteria, reflecting a landscape planning orientation, is applied in project review is provided by a 1971 ruling on a permit application for a Mobil Oil Corporation service station in the town of Richmond. The proposed development site was to be located on a 4.5 acre parcel of land zoned for commercial use, lying adjacent to the Richmond interchange on Interstate 89. Testimony taken on the matter confirmed that undue stress would be put upon the aesthetics and landscape of the area. This point was made by the Secretary of Vermont's development agency when he argued that the project was not in the interests of the state:

"Vermont's appeal to out-of-state visitors is based upon our uniqueness in that we have taken great strides to protect our scenic beauty and environment and have not over-commercialized our roadways and our landscape as other states have done. Vermont has taken great strides to protect the scenic views from Interstate 89 and one of the most attractive areas of Vermont is the view of the river valley in Williston and Richmond which combines the mountain splendor with rich agricultural land and typical Vermont countryside. On the basis of much evidence, the regional environmental commission denied a permit for development on five findings of fact:

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[16] F. Bryan, *Yankee Politics in Rural Vermont* (Hanover: University Press of New England, 1984), p. 14.

[17] A. Rebek, "The Selling of Vermont: From Agriculture to Tourism, 1960-1910," *Vermont History*, 44:1 (Winter, 1976), pp. 14-27.

[18] M. Lapping, "Landscape Planning Policy in Vermont: An Overview," *Landscape Planning*, 8 (1981), pp. 349-61.

[19] M. Lapping, "Toward A Working Rural Landscape," in C. Reidel, ed., *New England Prospects: Options and Choices for the Future* (Hanover: University Press of New England, 1982), pp.59-84.

[20] For a general history of Act 250, see P. Myers, *So Goes Vermont* (Washington, D.C.: The Conservation Foundation, 1974); R. Healy, *Land Use and the States* (Baltimore: Johns Hopkins University Press, 1976).

[21] T. Daniels and M. Lapping, "Has Vermont's Land Use Control Program Failed? Evaluating Act 250," *Journal of the American Planning Association*, 50:4 (1984), pp. 502-508.

> "(1) The view from Interstate 89 of the Winooski Valley, which includes the proposed development site, is a unique and irreplaceable area of scenic and natural beauty.
>
> "(2) The proposed development for which the applicant seeks a permit will have an adverse effect on the scenic and natural beauty of the area.
>
> "(3) The findings that the proposed development will have an adverse effect on the scenic and natural beauty of the area is based on uncontradicted evidence to that effect.
>
> "(4) The proposed development will have an undue adverse effect on the scenic and natural beauty of the area.
>
> "(5) The District Commission #3 finds that the gain of a gasoline service station at the expense of marring a unique area of great scenic and natural beauty is detrimental to the general welfare of the people of the state.

"As happens in many of these cases, the applicant came back to the commission after several years and reapplied for a permit for development. This time, however, Mobil radically re-designed its project on a smaller scale, with landscaping in harmony with the site, and a greatly reduced sign which does not have an 'undue adverse effect' on the landscape as seen from the road."[22] A permit was granted and the station now exists.

In a more recent case, a projected 82-store shopping mall in then semi-rural Williston was denied a permit, though not on the aesthetic basis its opponents often used to attack the proposal. Instead criteria seeking to protect established communities and "rural characteristics" in general were utilized. "What the commission said, in effect, after months of deliberation, was that the mall would place great burdens on Chittenden County's traffic network and municipal services, that it would violate the rural character of the area and might seriously damage the future of Burlington."[23]

Act 250 appears to have controlled some very suspect land development proposals. Still, and perhaps as a reaction to it, it would seem that "a considerable amount of land sales and development activity has been designed to bypass the law's provisions. . . . "[24]

In an effort to address some of the loopholes in the law, as well as other administrative issues, Vermont passed into law Act 200 in 1988. Together with amendments made in 1990, Act 200 complements Act 250 by making important changes to Vermont's comprehensive municipal and regional planning law (V.S.A. 24, Chap. 117). One of the major criticisms of Act 250 was that it threw much of the responsibility for plan review back onto local communities which were largely unprepared to assume such burdens.[25] Act 200 rectifies this by providing a grants program which underwrites the cost of local governments seeking to establish planning staffs. Further, it provides additional support and new responsibilities for Vermont's regional planning commissions. Local opposition to Act 200 has emerged because in addition to "carrots" to support local planning there is also a perceived "stick." By 1996 all towns must have a plan and they must be in compliance with state standards and accepted by the local regional planning commission. In a strong "home rule" state, such as Vermont, this is seen by some as a threat to that tradition. Additionally, as long as Act 250 was directed toward large-scale developments—usually proposed by out-of-state interests and capital—local interests were rarely enjoined from pursuing their projects and goals. Act 200 moves some of the locus for rural land use planning back to the regional and local levels. Significantly, too, Act 200 also applies to state departments and agencies as well as to private sector actors. In this way, Act 250 and 200 seek to weave a tighter fabric of land use planning which involves all levels of Vermont government.

Vermont also seeks to address its landscape and land use planning concerns through an active farmland preservation program, the support of land trusts, differential taxation approaches and a capital gains tax on land transactions. Though other states have proposed such a tax scheme—largely to dampen the enthusiasm for rural land speculation—only Vermont has implemented such a program.[26] Over-all, its affects have been mixed. As one critical review has noted, "the tax has not raised much revenue and during the post-tax era real land prices generally increased and average parcel sizes continued to decline. On the other hand, the amount of land supplied to the market at any one point in time appears to have decreased during the post-tax era, and the percentage of land sales occurring within six years of purchase has fallen." Moreover, "a major accomplishment" may have been that "a number of speculators— particularly large out-of-state interests—may have been discouraged from operating in Vermont in favor of less regulated land markets."[27]

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[22] *Mobil Oil Corporation File*, Environmental Board, Montpelier, Vermont.

[23] *Pyramid Corporation File*, Environmental Board, Montpelier, Vermont; Alan Green, "The Battle of Pyramid Mall," *Environmental Action*, 10:3 (Nov. 4, 1978), p. 7.

[24] Daniels and Lapping, "Has Vermont's Land Use Control Program Failed?," p. 507.

[25] N. Byers and L. Wilson, *Managing Rural Growth: The Vermont Development Review Process* (Montpelier: Vermont Environmental Board, 1983), p. 42.

[26] See, R.L. Baker, "Controlling Land Use and Prices Using Special Gains Taxation to Intervene in the Land Market: The Vermont Experience," *Environmental Affairs*, 4 (Summer, 1975).

No state in the Northeast, and perhaps in the nation, has so consistently addressed rural land use planning issues as has Vermont. Certain changes in the state's land use configuration and budget are inevitable. Clearly, farmland conversions have been many and significant. But this is attributable, in the main, to changes in the economics of the "hill farm" and the dynamics of the dairying industry. Indeed, Vermont has seen its farmland relative to its forestland base flip-flop within the last century. In a very real sense the Vermont farmland of yesterday is the Vermont forest of today.[28] This is not so much indicative of an agriculture under great development pressures as it is of a farming system seeing its economic viability erode and dissipate. Currently the picture is different and it is essentially accurate to say that even with Acts 250 and 200 in place, along with other major programs, some of the rural qualities of the state are being "nickel-and-dimed" to death. It may well be that in Vermont these problems and issues have greater impact and currency than anywhere else in the region because Vermonters have come to understand the connection between the state's soft, seductive pastoral landscape and its economic development options. Perhaps that is why so much seems to be "in the works."

> . . . the Vermont farmland of yesterday is the Vermont forest of today.

### The urban/rural fringe: Contested territory

As American cities grew, they spread out as well as up. Large, sprawling metropolitan areas emerged. Even the most progressive strategies have failed to divert the great movement of people and jobs to the suburbs.[29] The 1990 U.S. Census will likely confirm the fact that the United States has become a suburban nation. The target of development pressure has usually been those relatively flat, open fields in agricultural land use which have historically existed within or surrounded most American metropolitan areas. Development has, at times, intensified, ebbed, leap-froged and halted, depending upon many variables. Since the 1960s, however, development pressures have very often by-passed older suburban areas and have sought out "exurban" locations where land has been cheaper and markets more stable. While this phenomenon exists across the nation, the loss of farmland to such development pressures has been greatest in the East.[30] Conflict has very often emerged between those who have sought to protect and retain farmlands on the fringe and those who have advocated development. Despite attempts to make the farmland preservation issue a national concern, as in the case of the National Agricultural Lands Study,[31] it is an intensely local one. The problem is very textured and farmers, for example, are as likely to line up on opposing sides as anyone else. Though I am not always convinced that farmland protection is a "rural" planning issue, nevertheless it is probably *the* problem most planners and policymakers associate with rural America.

Farmland protection strategies in the Northeast fall into three distinctive "generations." The first type of technique which has been utilized are those differential assessment programs—preferential assessments, deferred taxation schemes, restrictive agreements—geared to reducing the tax liability of farmers. Land in agricultural use is assessed on the basis of its value as farmland as opposed to its market value in some other use. Assuming that use value is lower than market value in changing land markets, land assessments and taxes are lower. The expectation of such programs is that lower property taxes will encourage farmers to keep their lands in farmland use, even in the face of development pressures. As a class, property tax breaks for agricultural land have not been very effective in retaining land in agricultural uses in fringe areas.[32] The tax breaks are woefully small compared to the large sums that developers are prepared to offer. And there has been some abuse of farm property tax breaks by land speculators who use the reduced taxes to subsidize the holding of land until it "ripens" for non-farm development. Similarly, because a farmer's land is also a retirement account, the tax break enables the farmer to hold land longer and eventually sell the farm for top dollar, which often means for development. As a result, farmers in fringe areas are reluctant to enter agreements that limit their options to sell land. In addition, preferential assessment for farmland may cause the property tax burden to shift from farmland owners—even wealthy hobby farm owners—to owners of non-farm property. Local tax revenues may decline, prompting a search for more intensive development to bolster tax receipts.

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[27] T. Daniels, R. Daniels and M. Lapping, "Vermont's Land Gains Tax, A Lesson in Land Policy Design," *American Journal of Economics and Sociology*, 45:4 (Oct., 1986), p. 452.

[28] Lapping, "Working Rural Landscape," p. 64; Lapping, "Vermont's Forests," in *American Encyclopedia of Forestry and Conservation* (New York: MacMillan, 1982), Volume 2.

[29] See K. Jackson, *The Crabgrass Revolution: A History of Suburbanization in the United States* (New York: Columbia University Press, 1985); J. Teaford, *The Rough Road to Renaissance: Urban Revitalization in America, 1940-1985* (Baltimore: Johns Hopkins University Press, 1990).

[30] M. Vesterby and D. Brooks, "Land Use Change in Fast-Growth Areas, 1950-1980," in R. Heimlich, ed., *Land Use Transition in Urbanizing Areas* (Washington, D.C.: The Farm Foundation and the Economic Research Service, U.S.D.A., 1989), p. 102.

[31] National Agricultural Lands Study, *Final Report* (Washington, D.C.: U.S. Government Printing Office, 1981).

[32] See, M. Lapping, T. Daniels, and J. Keller, *Rural Planning and Development in the United States* (New York: Guilford Publications, 1989); M. Lapping, "Protection Efforts in the Northeastern States," in F. Steiner and R. Thielaker, eds., *Protecting Farmlands* (Westport, Conn.: AVI Publishers, 1984), pp. 173-181; T. Daniels, M. Lapping, and F. Steiner, "The Rural-Urban Fringe in the United States," unpublished Ms.

The "second generation" of farmland preservation tools have had a land-use control and planning orientation. The most widely used of these techniques is agricultural zoning. The strength of zoning is that it can separate conflicting farm and non-farm land uses, and prevent the fragmentation of the farmland base into parcels too small to farm. Many fringe counties and communities, however, view agricultural zoning as a means of preserving open space, rather than maintaining a viable agricultural sector in the local economy. This is especially true where minimum lot sizes are under 20 acres. Often rural residences and "hobby farms" are allowed in such agricultural zones. Only where minimum lot sizes are large enough to discourage intrusions by low-density residential development and hobby farmers can commercial agriculture be protected from the parcellation of the land base and land prices that far exceed the agricultural value. Large-lot agricultural zoning may also result in more land being taken up by residences than necessary. For example, if a buyer purchases the minimum lot size in an agricultural zone, then the local jurisdiction will usually grant a building permit. A better means of conserving farmland would be to require a clustering of residential development on a portion of a tract while maintaining the remaining land in agriculture. Also, sliding-scale agricultural zoning which allows a single 1/2 to one-acre building lot per 20 or more agricultural acres can reduce the creation of 5-20 acre hobby farms.

Large-lot agricultural zoning may result in more land being taken up by residences than necessary.

Agricultural zoning has an uneven history in fringe areas. It is often criticized for its impermanence. Even the most carefully prepared zoning maps and ordinances may be subject to variances, zoning amendments, rezonings to non-farm uses, and special exceptions. Zoning decisions are usually made by politically vulnerable local governments, and agricultural zoning is likely to change in the face of development pressures. Moreover, zoning decisions are made on a case-by-case basis. As a consequence, the cumulative effect of these individual decisions many not be fully recognized. Also the lack of coordination among jurisdictions can easily frustrate comprehensive regional agricultural zoning.

The management of agricultural zones may therefore be crucial to the long-term viability of farming in a county or region. If some farmers sell out because of incompatible development in the neighborhood, then the remaining farmers are likely to experience both greater difficulty in retaining farm support businesses and increased pressure to sell out for development as the amount of developed land increases.

Agricultural districts have been employed as a compromise between preferential assessment and agricultural zoning. Agricultural districts were first formed in New York State in 1971 and have since been adopted in 14 other states. Typically, farmers may voluntarily create a district of at least 500 acres in return for property tax benefits and exemption from nuisance laws that would restrict normal farming practices; also, there are controls on the extension of public sewer and water lines and roads into the district. But no penalties are levied if a farmer withdraws land from the district.

Although the formation of agricultural districts has been popular in rural areas, few districts have been formed within a 25-mile radius of major cities. Farmland owners in the fringe anticipate an eventual conversion of their land to non-farm uses and hence do not initiate farm districts or enroll their land.

The use of public money to purchase development rights (legally known as easements) to privately held land has become increasingly popular in recent years as a mechanism to preserve agricultural land and open space. Several states, counties, and towns have devoted substantial dollars toward the purchase of development rights (PDR). The majority of PDR programs are found in the Northeast, and are particularly popular in urban fringe areas where farmland and open space have been readily converted to urban/suburban uses. Although PDR programs are likely to remain controversial because of the sizable costs involved, they offer a more permanent solution than zoning and provide private landowners with compensation in return for preempting development.

The purchase of development rights represents a middle ground between these two extremes. Under a PDR arrangement, the farmer receives compensation in return for not selling the land for development. The extra money can be used to buy down debt, re-invest in the farm, or for other purposes. The farmer retains title to the land and can sell or pass along the land to others, although the use of the land is limited to farming and open space.

The purchase of development rights to preserve farmland and open space has enjoyed increasing popularity in recent years. As of 1980, only four states—Connecticut, Maryland, Massachusetts, and New Hampshire—had enacted PDR programs. By 1989, ten states had adopted the PDR approach: five of six New England states (all except Maine), California, Maryland, New Jersey, Pennsylvania, and West Virginia. The two main strengths of a PDR program are that it scores high in landowner equity and provides substantial permanence in farmland preservation. The landowner is compensated for development restrictions, and the land generally cannot be developed.

The central weaknesses of the PDR approach are the high cost to the public purse and its voluntary nature. In Suffolk County, Long Island, adjacent to New York, the nation's largest city, development rights have sold for an average of $5,000 an acre.[33] Initial purchases of development rights in King County, Washington, around the rapidly growing city of Seattle, cost an average of about $8,000 an acre, though the total program average was slightly over U.S. $4,000 an acre (King County, 1987).

In an effort to address this central weakness, a number of jurisdictions, especially in Maryland and New Jersey, have experimented with transferring (TDR) rather than purchasing development rights.[34]

Under any TDR proposal, the development rights are freely transferable among private parties or between a private party and a public agency at market prices. The use of these rights is then limited by the comprehensive land use plan for that particular area. Ultimately, a landowner in a preservation district owns land with fewer use options and owns development rights which relate to lands he or she does not own.

TDRs seem to present several advantages over other land-use control devices. The timing and pattern of development can be controlled, in part, through zoning and manipulation of the availability of public utility services. Moreover, TDR systems correct a serious flaw of the land development process by charging the costs of such growth to private sector participants rather than to the community.

The most serious obstacle to the implementation of a TDR program is the very real possibility that there will be insufficient demand in the private sector for the development rights. Unless owners of land in the preservation zone can find willing buyers for the development rights at a fair price, the value of the rights to the landowner will be severely limited. In a poorly organized or noncompetitive market, the developer is likely to reap large benefits from the development rights at a lower price. Furthermore, the developer can pass on his/her costs to consumers in higher purchase prices or rents. The presence of a public intermediary agency, acting as something of a broker for a development rights bank, could resolve this problem by controlling the available supply of development rights and by making market information available to prospective sellers. Likewise, by targeting acquisitions it can help maintain "critical masses" of land and farms necessary to support agribusiness infrastructure. Yet the inability to guarantee justice and equity remains the greatest single drawback to this technique.

As the states of the Northeast grow in both experience and sophistication with farmland retention, still other modes of land protection, a third generation, are being articulated. Pennsylvania and Massachusetts are both encouraging land banking by local communities and municipalities. Within the private sector, land trusts are also growing both in size and number.

Some of the states, notably Delaware, Maryland, New York, Pennsylvania, and Vermont, have most recently promulgated "right to farm" laws. These laws attempt to respond to a growing rural-based problem.

At root underlying much of the farmland retention controversy have been local land-use conflicts between farmers and rural and suburban residential residents. The irony of the situation is obvious. While farming creates the atmosphere and bucolic landscape so many homeowners wish to be part of, it is the business of farming, which mandates certain practices and functions, that these same residents often find offensive. The result is a conflict wherein non-farming neighbors try to restrict or eliminate agricultural practices. In the Northeastern context this has translated itself into a non-farming majority which utilizes land-use controls to regulate farming, or nuisance lawsuits, which attempt to enjoin or severely restrict certain practices. What many seek, really, is a farmland without farmers!

What many seek, really,
is a farmland
without farmers!

Though not usually seen as a farmland preservation strategy, the newly promulgated "right to farm" laws and programs go right to the heart of the matter. The "right to farm" laws, in one way or another, try to arrest the growing number of restrictive ordinances and regulations and attempt to make void nuisance lawsuits, which some argue unduly harass farmers.

At least 47 states have enacted right-to-farm laws to provide farmers with protection against nuisance suits for standard farming practices. The existence of such laws is especially important in fringe areas where newcomers have been influential in having nuisance ordinances passed and pressing nuisance suits against farmers to limit their operating practices. Right-to-farm laws do not exempt farmers from state and federal laws relating to pollution and safety. These laws, however, serve to underscore the legitimacy of farm uses, even the primacy of farm uses above other land uses that may develop in the vicinity.[35]

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[33] J. Buckland, "The History and Use of Purchase of Development Rights in the United States," *Landscape and Urban Planning*, 14 (1987), pp. 273-352.

[34] D. Pitt, et al., "Transfer or Purchase of Development Rights Programs," in Heimlich, *Land Use Transition in Urbanizing Areas*, pp.153-171.

Finally, the "third generation" of programs also emphasizes measures which seek to generate greater levels of economic returns for farmers. Thus, state departments of agriculture are making the transition from almost purely regulatory bodies into entrepreneurial agencies. Marketing support, quality control programs, technology transfer and diffusion programs, and other forms of support have emerged which focus less on land issues and more on the enhancement of farm-generated incomes.

Frequently two or more farmland protection techniques are employed by jurisdictions because no single technique can address the number and complexity of pressures on farmland. For example, agricultural zoning may be used to restrict development while at the same time preferential property taxation keeps farm property taxes down and right-to-farm laws protect the farmer's normal farming practices. And all of this may now be occurring in an environment in which public policy is striving to develop new markets and to stimulate income generation within the farming community.

While it ought to be clear that the preservation of farmland in the "shadow of the city" is a genuine state and local concern, it is far less clear that policymakers really seek to preserve agriculture. Indeed, many of the most important and sensitive adjustments which farmers on the urban/rural fringe have made are too rarely recognized and understood.[36] And while it is obvious that many techniques used to promote land retention, like preferential taxation and right-to-farm statutes, will be advantageous for agriculture in such regions, the contest for open, developable lands on the fringes of great cities may be so great, so intense, and so overwhelming that society may need to re-think the issue and what is really at risk.

## Conclusion

This short review has attempted to suggest just how complex rural land use planning issues are in the Northeast. The region's rural areas exist on a broad and long continuum stretching from wilderness areas to farms truly within the shadow of some of our largest cities. No single policy prescription could possibly cover all of the problems and issues which confront land-use policymakers and planners in the region. What is critical, I think, is that the range and complexity of rural areas in the Northeast must be recognized and understood. Further, it is important to treat those who live and work in these places with sensitivity and respect. Too often they have been portrayed as "those who stayed behind," "rubes," "appleknockers," and just plain old "hicks."[37] That simply will not do. We must come to see and appreciate the fact that for nearly four centuries they have been reasonably good stewards of the land and resources upon which so much of our prosperity and national promise has been based.

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[35] M. Lapping, A. Penfold, and S. McPherson, "Right-to-Farm Laws: Do They Resolve Land Use Conflicts?," *Journal of Soil and Water Conservation*, 26:6 (1983), pp. 465-467; M. Lapping and N. Leutwiler, "Agriculture in conflict: Right-to-Farm Laws and the Peri-Urban Milieu for Farming," in W. Lockerez, ed., *Sustaining Agriculture Near Cities* (Ankeny, Iowa: Soil Conservation Society of America, 1987), pp.

[36] See R. Heimlich, "Metropolitan Agriculture: Farming in the City's Shadow," *Journal of the American Planning Association*, (Autumn, 1989), pp. 457-466.

[37] M. H. Baron, *Those who Stayed Behind: Rural Society in Nineteenth-Century New England* (New York: Cambridge University Press, 1984).

# The Rural Fringe in the New Metropolis

Julian Wolpert and Michael N. Danielson*

Much of the focus of research on urban expansion into nearby rural areas employs the metaphor of *encroachment,* i.e. a process initiated by advancing urban interests that is met by a resistant or at least passive response in the countryside. Our primary objective is to show that momentum for the expanding metropolitan frontier is two-sided—comprised of both pushes from the urbanized areas and pulls from the rural periphery. A second objective is to demonstrate that the changes accompanying the expansion of the urban political economy into adjoining rural areas are part of a process that alters the spatial structure of metropolitan areas. A third objective is to provide a balanced analysis of the benefits and costs of metropolitan expansion for the affected rural communities.

Our framework is based on the assumptions of location theory and factor pricing and gives strong weight to declining transportation costs and accelerating land needs as key elements in rural fringe development. We also assume that local governments in affected rural areas are active participants through land use policies that encourage intensification in response to growing market demand. The outcome suggests a distinctive life cycle of rural fringe development.

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The analytic objectives in this paper are to define the parameters of the advancing urban frontier, the stages of rural fringe inclusion in the newly structured metropolitan area, and the consequences of these changes for the rural economy and rural residents. The models examine the pushes and pulls leading to differential population, employment, commercial and industrial growth in a complex metropolitan area and adjacent rural areas, and the comparative effects of this differential growth on the welfare and quality of life of rural residents and communities relative to the more urbanized zones of metropolitan areas. The test case is a region of Northern New Jersey that has been experiencing both strong metropolitan growth and rapid decentralization since the 1970s.

Our analysis is based on the emergence of a recent phenomenon in metropolitan development, the *new metropolis* that is increasingly decentralized and advancing rapidly toward its rural fringes. The most fundamental change on the metropolitan fringe has been the effect of employment dispersal and the shift of the locus of metropolitan job growth to outer suburbs bordering the rural areas. The advancing frontier represents a resolution of urban pushes and rural pulls and the gradual decline of intervening opportunities for development in the closer-in suburbs. The current rural incursions are led by the search for affordable housing and residential amenities which are then followed by enhanced out-commuting of rural residents and the in-movement of commercial and industrial development requiring spacious and less expensive land sites. Initial rural benefits are the increase in land prices and access to an expanded job market. Development also yields more municipal revenue for improved services but higher service costs and fundamental changes in style and quality of life.

Current theory is likely to be adequate for explaining the pace of rural fringe development through the shifting relative rent gradients for urban and agricultural uses (see Muth, for example), but insufficient to capture the complexities and unevenness of the evolving spatial structure and profile of the new metropolis. The dispersal of urbanization into neighboring rural areas has received a good deal of attention in the literature (see Berry; Brown, et al.; Fischel; Lopez, et al; Plaut). However, existing studies provide little solid documentation of the most recent trends, i.e. rapid growth surges with strong decentralization tendencies which combine incentives for rural development with advancing pressures of residential, commercial and industrial demand for rural sites.

## The outward expansion of the new metropolis

The pull forces at the rural fringe are abundantly clear. The persistence of a dual economy separating the agricultural and service centers of rural fringe areas from the urbanized economy of cities and their suburbs has traditionally worked to the disadvantage of rural residents. Rural-urban and rural-suburban disparities in income, job opportunities, returns from investment, and quality of public services have been a persistent byproduct of remoteness from metropolitan centers. The expanding urban frontier and highway improvements, however, have moderated the problem of rural access, provided new incentives for integration of the rural fringe into the urbanized economy, and led to fundamental changes in the rural economy. For farmers, even the returns from intensification of agriculture, truck farming, poultry production, and dairying in fringe areas have not been able to compete with profits from land development. Nor can wages for farm labor and other rural pursuits compete with income levels in the expanding suburban job markets. Accessible jobs and labor shortages also have increasingly attracted rural women and teen-agers into the suburban labor force. When given the opportunity, residents of rural fringe areas have generally opted for inclusion in the urban economy.

Push forces are amply in evidence as well. The advancing metropolitan frontier reflects not only aggregate regional growth but extensive decentralization of both jobs and residents from the center city and inner suburbs to the outer metropolis and rural areas. Thus, fringe areas gain both from the overall regional growth and the shift away from the most urbanized communities. As a result, rural zones on the fringe of metropolitan areas typically experience significantly faster population and job growth than center cities and near-in suburbs. Underlying rapid growth along the metropolitan periphery are rural areas' advantages in costs of land and labor, and their greatly improved access to metropolitan markets and suppliers. Fringe zones are increasingly able to capitalize on the growing relative cost disadvantages of center cities and suburbs for residential, commercial and industrial development. They have been "warehouses" of relatively cheaper land and manpower that are now better connected through improvements in metropolitan highway networks. Rural land and labor is also better connected because the rapid expansion of the metropolitan periphery decreases distance and travel time between urbanizing areas and the rural hinterland. Center city congestion, land and labor costs, and other disamenities severely restrict commercial, industrial and residential development at the metropolitan core. The inner tier of suburbs have been exhausting their supply of cheap developable land and have become more selective about land use change and intensification in response to increasingly articulate and politically influential residential interests.

Adding to the attractions of the rural fringe areas is the accelerating impact of fundamental changes in the nature of urban development in the automotive age. More and more activities have been liberated from central locations and rail transportation. Most of these footloose activities consume large amounts of space to accommodate linear commercial, industrial, and residential developments, along with their associated roadways, parking facilities, and public infrastructure. What results is an accelerating outward extension of metropolitan areas and an increasingly rapid conversion of a widening circle of rural land into more intensive uses.

The outer limits of the advancing metropolitan frontier are presumably bounded by the intensity of regional demand for land and labor and improvements in transportation access. Defining the outer edge of the new metropolis, however, is difficult, since urban development diffuses into rural areas along the periphery, creating extensive zones of mixed urban and rural land use that may extend for scores of miles. Limits, in fact, no longer may be the appropriate way to think about this new metropolis, given the scatteration of urban development over extensive areas that are otherwise rural. Although these rural fringe zones are quite remote from metropolitan centers, their access to markets and suppliers improves as suburban job clusters supplant core cities as foci of metropolitan economic development. As this decentralizing trend brings rural sections closer to the nodes of development, these areas are tapped initially for manpower and residential sites and subsequently for more intensive commercial and industrial development.

The point of departure in our analysis is the changing density profile of metropolitan areas. An initially steep density gradient had been associated with employment and residential concentration at the center, the pattern of the classic industrial city. Decentralization and metropolitan growth have tended to flatten the profile, as residences, service jobs, and then commercial and industrial development moved outward. The most recent trend has witnessed an accelerating flattening of the density profile as suburban employment and population growth spread rapidly outward into adjoining rural areas. The profile would be expected to have the shape of a dampened sine wave with its successive peaks reflecting, respectively, center city, older suburban, and the growth centers of the new and highly dispersed metropolis. These new centers typically are more connected to the older residential suburbs than to the center city. Their growth is also heavily influenced by their location as nodes on the radials and outer ring highways and beltways.

We assume that the flattening process has been driven by comparative factor costs and especially by the differentials in land and labor prices that have resulted from highway expansion and improvement. Also important are amenity considerations that strongly influence locational choices of both firms and residents, and the substantial role of state and local government in actively promoting development of this decentralized new metropolis.

The advancing frontier of the new metropolis is accompanied by a corresponding reduction in rural and agricultural activities consistent with the comparative returns from land, labor, and capital investment. This advancing frontier should have a predictable effect on the economy in its rural fringes. An increasing proportion of the rural labor force would be expected to find employment in nearby expanding suburban job centers. Rural and exurban sites would be in greater demand to accommodate both residential and commercial development. The number of farms as well as farm acreage should decline and farm wages should increase along with the growing shortage of farm labor. Farm income on the remaining farms should not rise as rapidly as in commercial and industrial sectors and land prices should increase dramatically, especially near the corridors of development. Property taxes should rise rapidly with the influx of new residents and businesses, and the concomitant enhancement in land values.

Agricultural land use should also shift away from grain crops, pasture and labor intensive farming to sod, vegetables, nursery stock, and other uses in greater demand by the new residents. These trends should show up in the successive bands surrounding the expanding urbanized areas; and their intensity should be greatest during periods of most rapid metropolitan growth and decentralization.

## The changing metropolitan profile in northern New Jersey

The study area encompasses 365 contiguous municipalities which comprise the northern half of New Jersey, a region west of New York City that has recently experienced rapid overall growth (Figure 1). All of New Jersey is subdivided into municipalities: thus rural as well as urban and suburban areas are incorporated, usually as townships. These localities differ significantly in population, size, wealth, and land use devoted to housing, commerce, industry, farms and open space. Included are a number of older cities that have been declining in population and jobs, along with suburban towns and more rural local units which exhibit marked differences in the socio-economic composition of their population, level of service provision, and land use pattern.

### The urban-rural continuum

Rural fringe areas in this complex region are defined through an index that gives equal weight to transition variables spanning the continuum from

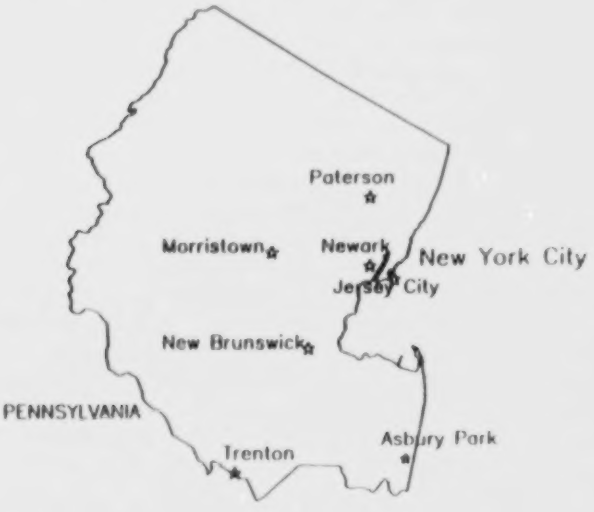


**Figure 1.** Northern New Jersey Study Area.

highly urbanized to traditional rural landscapes. The variable set for the 365 municipalities includes: distance from the urbanized core in New York City; population, employment, highway and road density per square mile; and the proportion of farm parcels among total assessed property. The distribution of the index values (the addition of their z scores) shows a predominantly rural zone in the western and southern fringes of the study area that is dotted by small boroughs and towns and interrupted by several highway corridors (Figure 2). The variables comprising the index are so highly intercorrelated that parts of our description and analysis are based upon single rural indicators, e.g. distance from New York City and population density.

At the most rural end of the continuum are sparsely populated large townships with a significant portion of land in operating farms, forests, and recreational use; other prominent land uses include second homes, gentleman farms, retirement communities, and state institutions for the mentally handicapped and offenders. These rural areas also contain small service centers with administrative offices, schools, a few shops, and some occasional light manufacturing. Land and housing prices are much lower than in the adjoining more urbanized areas. The rural areas and their service centers have some of the infrastructure in place for modest residential and commercial development, but substantial growth would entail considerable expansion of roads, water and sewage capacity, school construction and other public service facilities.

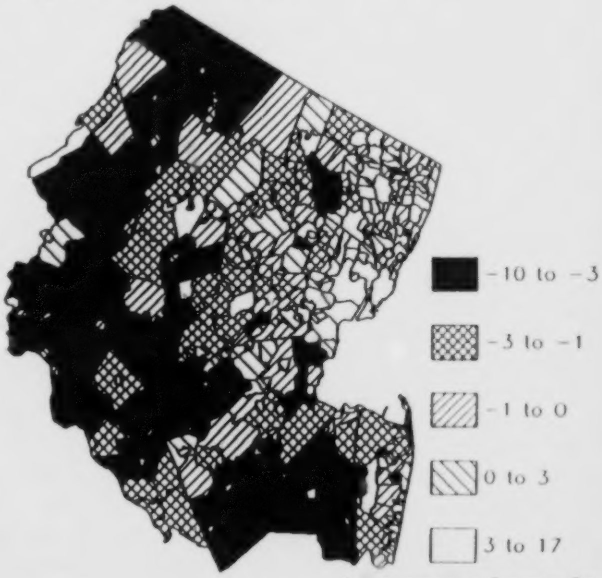
### Growth and decentralization in the region

Recent growth in residents, jobs, and tax base has consisted of some infill of interior areas but mainly dispersed development. Current market demand by major developers is for large tracts of accessible but less expensive land for offices and shopping centers. Since the region is served by a dense network of highways and roads, more distant exurban municipalities have a comparative advantage in attracting footloose industries and residents. Closer-in and more populous areas capture more growth that is tied to existing development.

Overall population in the study area grew 17 percent from 1960 to 1987 after a very rapid 22.5 percent increase in the previous decade alone. In the same 1960 to 1987 period, however, jobs grew by 70 percent, raising the employment to population ratio from 34 percent to a very high level of 49 percent. The growth of jobs relative to population occurred through a combination of some reduction in out-commuting, an increase of in-commuters from adjoining rural areas, and a higher level of labor-force participation as additional household members were drawn into suburban jobs.

Northern New Jersey has been experiencing not only overall growth but considerable decentralization of both population and employment and its density profile has been steadily flattening during the 1970 to 1987 period. The profile of population density (via a log-log regression fit) shows a density decline from 10.04 percent for each ten mile ring from New York City in 1970 to 9.3 percent in 1987 (LPopDen1970 = 4.357 - 0.875LDistNYC; LPopDen1987 = 4.278 -

**Figure 2.** Rural Index 1970.



based upon sum of z scores for:
- distance from New York City
- population density
- employment density
- highway density
- road density
- proportion of farm parcels

0.935LDistNYC). The corresponding profile of employment density flattened much faster—from 13.4 percent in 1970 to 11.0 percent in 1987 for each ten mile ring (LEmpDen1970 = 4.021 - 1.341LDistNYC; LEmpDen1987 = 4.038 - 1.104LDistNYC). As a result, employment which was much more centralized than population until 1970 has now become virtually as dispersed as the distribution of population.

The profile shifts can be examined through a comparison of population and employment changes in successive ten mile rings from New York City. The distance rings are not an ideal surrogate for the urban-rural transition because some of the close-in places are low density suburbs; and a few of the more distant places are cities and towns located on major radial or circumferential highways. Nevertheless, the distance profiles can provide some important gross comparisons of the changing influence of distance from the region's major urbanized core. The inner-most ten mile ring lost 5.3 percent of its population between 1950 and 1960, 1.4 percent between 1960 and 1970, an additional 9.2 percent from 1970 and 1980, and 2.4 percent more from 1980 to 1987 (Table 1 *See Page 38*). The greatest relative gains were made in the zone 30 to 50 miles from New York City and moderate increases occurred in the predominantly rural areas beyond 50 miles. As can be seen from the density figures, the gradient is still quite steep despite the four decades of decentralization but the metropolitan profile has been profoundly altered.

Employment growth and distributional changes have been more dramatic than population shifts (Table 2 *See Page 38*). The inner ring lost almost 20 percent of its employment during the 1970s and had only a modest recovery after 1980. Relative job growth was especially high in the third and fourth rings in the 1970s. The 1980s witnessed accelerating job dispersal. The employment gradient also remains steep but has been flattening rapidly in the 20 to 50 mile rings.

Gradients of property values provide an additional dimension of the structure of the metropolitan area and its changing profile over the past two decades. Charting the distribution of commercial and industrial property values is especially useful because these data reflect both the total business property and the value of offices, retail establishments, and plant facilities that have been added during the period under study. The gradients of these commercial and industrial property values per capita are much less steep than the population and employment profiles and were flattening at a rapid pace in the 1970s, with the peak in the third ring (Table 3 *See Page 38*). In the 1980s, however, significant redevelopment occurred in the inner ring that exceeded the relative growth rate in the third and fourth rings. Overall, the profiles suggest that both values of new investments and increases in existing property values on a per capita basis have been increasingly decentralizing since 1970. The peak level was in the third ring by 1987.

The per capita income profiles demonstrate the gradual lessening of disparities within the expanding suburban domain (Table 4). The income peak was located in the second ring in 1970, but had passed to the third ring in the 1980s. Real income growth was especially high in the 1980s in the more rural zones beyond the third ring. Decentralization of population, jobs and property investment were bringing income gains to the outer areas and raising their income levels above those of the heavily urbanized inner zone.

**Table 4.** Per Capita Income by Distance Rings, 1970-87

| Distance Ring | Per Capita Income (1970 $) *1970* | *1980* | *1987* | Change (%) *1970-80* | *1980-87* |
|---|---|---|---|---|---|
| 1 | 3461 | 3779 | 5596 | 9.1 | 48.1 |
| 2 | 4450 | 4883 | 7433 | 9.7 | 52.5 |
| 3 | 4334 | 5238 | 8461 | 20.9 | 61.5 |
| 4 | 3846 | 4723 | 7399 | 22.8 | 56.6 |
| 5 | 3608 | 4262 | 6714 | 18.1 | 57.5 |
| 6 | 3150 | 3812 | 5874 | 21.0 | 54.1 |
| Total | 4025 | 4715 | 7383 | 17.1 | 56.6 |

**The agricultural sector in the rural economy**

Farm activity showed a corresponding decline that extended even to the outermost ring of the metropolitan profile (Table 5). Our measure of farm activity is the proportion of all parcels of taxable property classified as farm property (and their proportionate value). The proportion of farm parcels first rose somewhat in the 1970s (due primarily to subdivision) and then declined in the 1980s in all the outer distance rings that had appreciable farm properties. Even more dramatic, especially in the 1970s, was the declining farm share of municipality property values. In the 1980s enhancement of the value of farm land and buildings slowed their proportionate decline somewhat.

**Table 5.** Share of Farm Parcels and Assessed Property by Distance Rings, 1970-87

| Distance Rings | Share of Farm Parcels to total Parcels (%) *1970* | *1980* | *1987* | Share of Assessed Farm Property to Total Property (%) *1970* | *1980* | *1987* |
|---|---|---|---|---|---|---|
| 1 | 0. | 0. | 0. | 0. | 0. | 0. |
| 2 | 0. | 0. | 0. | 0. | 0. | 0. |
| 3 | 0.9 | 0.9 | 0.8 | 0.9 | 0.5 | 0.4 |
| 4 | 4.4 | 4.2 | 3.4 | 4.5 | 2.6 | 1.8 |
| 5 | 10.6 | 11.8 | 11.3 | 12.0 | 7.9 | 6.8 |
| 6 | 12.1 | 14.0 | 13.4 | 16.7 | 10.6 | 9.3 |
| Total | 3.5 | 3.8 | 3.5 | 4.1 | 2.6 | 2.2 |

**Table 1.** Population Changes by Distance Rings, 1950-87

| Distance Ring | Population | | | | | Population Change (%) | | | | Population Density | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *1950* | *1960* | *1970* | *1980* | *1987* | *1950-60* | *1960-70* | *1970-80* | *1980-87* | *1950* | *1960* | *1970* | *1980* | *1987* |
| 1 | 1,298,746 | 1,230,265 | 1,213,215 | 1,101,400 | 1,074,430 | -5.3 | -1.4 | -9.2 | -2.4 | 12652 | 11985 | 11819 | 10730 | 10467 |
| 2 | 1,529,504 | 1,929,538 | 2,083,225 | 1,946,420 | 1,944,373 | 26.2 | 78.0 | -6.6 | -0.2 | 4159 | 5246 | 5640 | 5212 | 5286 |
| 3 | 534,601 | 912,386 | 1,278,882 | 1,295,223 | 1,369,411 | 70.7 | 40.2 | 1.2 | 5.7 | 653 | 1115 | 1563 | 1583 | 1674 |
| 4 | 228,488 | 342,782 | 529,775 | 628,097 | 697,115 | 50.0 | 54.6 | 18.5 | 11.0 | 221 | 332 | 517 | 608 | 675 |
| 5 | 296,148 | 353,145 | 414,498 | 455,267 | 495,528 | 19.2 | 17.4 | 9.8 | 8.8 | 308 | 367 | 430 | 473 | 515 |
| 6 | 56,576 | 64,055 | 71,956 | 83,677 | 85,535 | 13.2 | 12.3 | 16.3 | 2.2 | 109 | 123 | 139 | 152 | 165 |
| Total | 3,944,063 | 4,832,171 | 5,591,551 | 5,510,084 | 5,666,392 | 22.5 | 15.7 | -1.5 | 2.8 | 1037 | 1270 | 1470 | 1449 | 1490 |

**Table 2.** Employment Changes by Distance Rings, 1960-87

| Distance Ring | Employment | | | | Employment Changes (%) | | | Employment Density | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *1960* | *1970* | *1980* | *1987* | *1960-70* | *1970-80* | *1980-87* | *1960* | *1970* | *1980* | *1987* |
| 1 | 598,366 | 626,954 | 504,393 | 515,233 | 4.8 | -19.5 | 2.1 | 5829 | 6108 | 4914 | 5019 |
| 2 | 554,201 | 750,884 | 868,944 | 973,324 | 35.5 | 15.7 | 12.0 | 1507 | 2042 | 2363 | 2646 |
| 3 | 194,384 | 346,431 | 544,659 | 703,938 | 78.2 | 57.2 | 29.2 | 238 | 423 | 666 | 860 |
| 4 | 77,680 | 129,596 | 208,557 | 290,900 | 66.8 | 60.9 | 39.5 | 75 | 125 | 202 | 282 |
| 5 | 188,015 | 193,416 | 211,547 | 261,731 | 2.9 | 9.4 | 23.7 | 195 | 201 | 220 | 272 |
| 6 | 17,646 | 22,795 | 24,082 | 26,324 | 29.2 | 5.6 | 9.3 | 34 | 44 | 46 | 51 |
| Total | 1,630,292 | 2,070,078 | 2,362,182 | 2,771,450 | 27.0 | 14.1 | 17.3 | 429 | 544 | 621 | 729 |

**Table 3.** Commercial and Industrial Tax Base Per Capita by Distance Rings, 1970-87

| Distance Ring | Commercial and Industrial Tax Base Per Capita (1970 $) | | | Change (1970 $) | | Change (%) | |
|---|---|---|---|---|---|---|---|
| | *1970* | *1980* | *1987* | *1970-80* | *1980-87* | *1970-80* | *1980-87* |
| 1 | 2218 | 2047 | 4339 | -171 | 2292 | -8.0 | 112.0 |
| 2 | 2236 | 2865 | 5569 | 629 | 2703 | 28.2 | 94.4 |
| 3 | 1824 | 2885 | 5934 | 1061 | 3048 | 58.2 | 105.5 |
| 4 | 1680 | 2192 | 4586 | 512 | 2394 | 30.5 | 109.2 |
| 5 | 1594 | 2065 | 3678 | 471 | 1613 | 29.5 | 78.1 |
| 6 | 1638 | 2025 | 3095 | 388 | 1070 | 23.7 | 52.8 |
| Total | 2030 | 2551 | 5100 | 521 | 2549 | 25.7 | 100.0 |

In fact, New Jersey's agricultural sector has been showing symptoms of the advancing metropolitan frontier at least since World War I. The number of farms in the entire state has declined from 30,000 to 8,000 and acreage is down from 1,800,000 to 900,000 in this period (NJ Dept. of Agriculture). Average farm size first increased from 60 acres in 1920 to a peak of 124 acres in 1970 but has since declined to 100 acres. Nurseries, vegetable production, and sod farms have indeed expanded and significant losses have occurred in livestock, poultry, and acreage devoted to grain crops and hay. Furthermore, farm income has barely kept pace with inflation as costs in most years, especially for labor, fertilizer, pesticides, fuels, taxes, and mortgage payments, have risen much faster than revenues. Futhermore, urban penetration of New Jersey's rural areas has reduced agricultural responsiveness to prices and discouraged capital and land use (Lopez, et al.) The farm profit impact is positive only when capital gains on land are included.

The increases in farm property values and in property taxes relative to farm income have been quite profound. The value of farm properties have, of course, increased most in the closer-in areas and highway corridors. A survey in the early 1980s revealed that farmland sold for immediate development purposes experienced an average annual price increase of 32 percent, peaking at $12,258 per acre in 1982 (NJ Dept. of Agriculture). In contrast, farmland purchased primarily as an investment rose 19.5 percent annually (peaking at $5,350 per acre) and the increase for land continuing in agricultural use was 6.5 percent annually (with a peak at $2,400 per acre.)

## The 1970 baseline

What were the baseline conditions in the metro area and its rural fringe that set the stage for the advancing frontier of urbanization in the subsequent two decades? The 1970 disparities in employment density and per capita income and business tax base by distance rings demonstrate the effect of remoteness from the concentration of economic activity in New York City and its nearby suburbs. The baseline regression analyses for 1970 tend to confirm the interdependence of the variables included in the rural index. Employment density in 1970 was lower where population and highway and road densities were lower and where remoteness and the share of farm parcels were relatively higher (Table 6a). The findings for income and tax base per capita are quite similar (Tables 6b and 6c). Per capita income is lower where remoteness, road density, and the proportion of farm parcels are higher. However, the highest income communities are relatively low density suburbs that are somewhat removed from the tollways and major state highways. The analysis of per capita tax base also confirms the anticipated effect of ruralness. Tax base is lower with a higher share of farm parcels, greater distance from New York City, and lower densities of highways and roads. Tax base is also lower where population densities are higher, reflecting lower levels of property values per capita in the closer-in and low income cities and towns.

**Table 6.** Baseline Regression Analyses, 1970

| | Dependent Variables | | |
|---|---|---|---|
| | a.<br>Log empl. density 1970 | b.<br>Log per capita income 1970 | c.<br>Log per capita tax base 1970 |
| % farm parcels 1970 | -1.140*** | -0.222** | -0.815*** |
| Log pop. density 1970 | 0.760*** | -0.053*** | -0.484*** |
| Log NYC distance 1970 | -0.129 | -0.099*** | -0.527*** |
| Log highway density 1970 | 0.381*** | -0.023 | 0.078** |
| Log road density 1970 | 0.361*** | 0.038* | 0.241*** |
| Intercept | 0.046 | 3.894 | 5.940 |
| Adj. $R^2$ | 0.833 | 0.077 | 0.401 |

n = 365
* = prob > .90 < .99
** = prob > .95 < .99
*** = prob > .99

## Rural effects on absolute growth, 1970 to 1987

Which of the rural dimensions was most prominent in the advancing frontier of urbanization and growth during the 1970 to 1987 period? How did rural sites fare in the competition for development with city and suburban communities during this period of rapid growth?

Our primary measure of economic growth is employment; more specifically the changes in overall jobs and their distribution among the units of a metropolitan region. Two additional measures are used which capture other important dimensions of growth—the changes in how population and tax base are distributed among the municipal units. Changes in tax base reflect both new investment and variations in the value of existing property, two aspects of growth which cannot be separated in our data. As a result, we track the overall change in the value of the local tax base rather than the growth resulting solely from new investment.

Absolute levels of employment density increased most where population density was lower in 1970 but the other rural indices were not significant, no doubt reflecting the faster pace of job development not at the fringes or urban core zones but in the intermediate distance rings (Table 7a). Per capita income also increased faster in the lower density areas but not where farm parcels were more prominently represented, again reflecting the relatively greater gains made in the intermediate suburbs than in the rural fringe zone (Table 7b). Tax base per capita increased fastest with increasing distance from New York City and where population densities were initially higher (Table 7c). The coefficient for farm parcels has the expected sign but is not significant. The general findings tend to indicate that the rural fringe zones gained only a

**Table 7.** Rural Effects of absolute Growth, Regression Analyses, 1970-87

| | Dependent Variables | | |
|---|---|---|---|
| | a. Log.empl. density 1970-87 | b. Log per capita income 1970-87 | c. Log per capita tax base 1970-87 |
| % farm parcels | 0.006 | -0.156*** | 0.352 |
| Log pop. density | -0.254*** | -0.070*** | 0.331*** |
| Log NYC distance | -0.056 | -0.014 | -0.224** |
| Log highway density | -0.041 | 0.006 | -0.007 |
| Log road density | 0.035 | -0.002 | -0.124 |
| Intercept | 1.167 | 0.506 | 3.813 |
| Adj. $R^2$ | 0.234 | 0.286 | 0.144 |

n = 365
* = prob > .90 < .99
** = prob > .95 < .99
*** = prob > .99

modest share of the region's *absolute* growth of jobs, income and tax base relative to the intermediate suburban centers. The analysis of *relative* growth rates would undoubtedly reveal a somewhat more prominent rural role. However, the very small base levels for 1970 in many of the rural communities make the analysis of relative growth quite problematic and the findings are not included in this paper.

## The effects of growth on the rural fringe

### Benefit measures

Measures of benefit levels need to capture both collective improvements reflected in improved public goods and services as well as gains relevant for categories of residents and other stake-holders such as landowners, developers, and businesses. Broadening the tax base is the most commonly sought benefit of economic development for municipalities. Other benefits include improved schools and other public services, appreciation of developable land and residential property values, and greater local employment opportunities. Benefits for communities are also affected by neighborhood spillovers and intergovernmental transfers. Economic growth is anticipated to provide the following benefits, which are captured by the indicated indices:

(a) stabilize or reduce local taxes—measured by equalized taxes on the local property tax base;

(b) transfer more of local tax burdens to businesses—measured by percent business share of property taxes;

(c) supplement the local property tax base with alternative revenue sources, including more transfer payments from state government—measured by percent revenues from non-property tax sources;

(d) yield greater revenues to underwrite improved local services—measured by municipal revenue per capita;

(e) increase home values—measured by residential property values per capita;

(f) encourage entry of more capital and less labor intensive modern commercial and industrial facilities—measured by business tax base per local employee;

These measures gauge municipal resources for maintaining and improving public services at lowest possible cost for residents. However, while a measure such as municipal revenue per capita is intended to capture a benefit resulting from growth, it also can reflect costs imposed by development in the form of more public services and infrastructure investments.

Communities will differ in the emphasis given to various benefit objectives. For example, some rural communities may not seek residential or commercial growth that will raise general property assessments even if market values of existing farms and homes are correspondingly enhanced. Instead, they may prefer to benefit from the spillover effects of neighboring growth.

### MCD classification

The individual communities within the study area are quite diverse. They vary in physical size, intensity of settlement, socio-economic composition, accessibility to transportation, availability of land for development, and property tax rates. To capture some of these differences, a seven-level classification of municipalities (or Minor Civil Divisions, MCDs) based on size and population density has been devised as follows:

MCD1, cities: Includes MCDs that meet two of the following criteria: area of ten square miles or more; population of 20,000 or more; density of 5000 per square mile or more.

MCD2, denser boroughs: Includes MCDs with less than two square miles and higher than average density for this group.

MCD3, sparser boroughs: Includes MCDs with less than two square miles and less than average density for this group.

MCD4, denser towns: Includes MCDs with between two and seven square miles and more than average density for this group.

MCD5, sparser towns: Includes MCDs with between two and seven square miles and less than average density for this group.

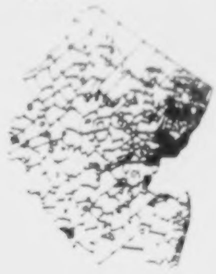
MCD6, denser townships: Includes MCDs with more than seven square miles and more than average density for this group.

MCD7, sparser townships: Includes MCDs with more than seven square miles and less than average density for this group.

By differentiating municipalities in terms of physical size and intensity of settlement, as well as distinguishing larger and intensively settled urban jurisdictions from other localities, the MCD classification groups communities according to context factors which substantially affect prospects for economic growth and the benefits of growth (Figure 3). The classification also provides a contemporary image of the rural-urban continuum as it has developed over recent decades. The sparser boroughs and towns (MCD3 and MCD5), respectively, were rural fringe zones at an earlier period. They are now transitional between suburban and rural land use. The distinctively rural municipalities presently include the entire MCD7 group, a substantial number of those in MCD6 and a small proportion of the communities in MCD3 and MCD5. Half of the new jobs and two-thirds of the new residents added in the region in the 1980s took place in MCD6, largely in municipalities that are in close proximity to the remaining rural townships (Table 8). Furthermore, the sparsely settled townships (MCD7) had a 24 percent population increase and a 46 percent increase in jobs.

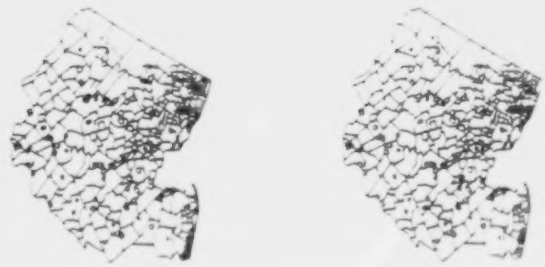
**Figure 3.** Classification of Northern New Jersey Municipalities

Cities



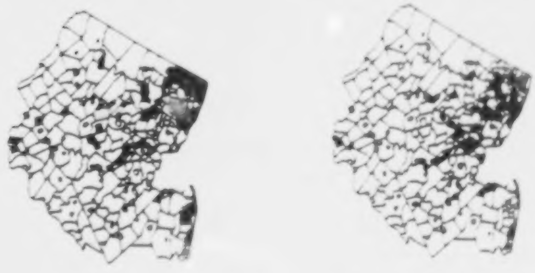
Sparser Boroughs

Denser Boroughs



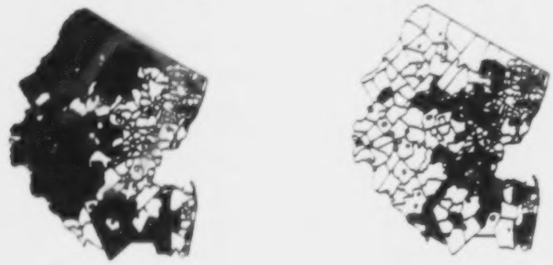
Sparser Towns

Denser Towns



Sparser Townships

Denser Townships



### Distribution of benefits from growth

Some general conclusions emerge from the empirical study of benefits that are observable from the tabular data. Most fundamentally, the region as a whole benefited significantly from growth (Table 9). Residential property values per capita had a real growth of 29 percent in the 1970s and 71 percent in the 1980s. The business tax base per employee almost doubled in real terms (48.7 percent) and grew almost three times faster than the rate of job growth (17.3 percent) in the 1980s. Thus, during this period of very rapid employment gains, the capitalization of plants and facilities was growing at an even faster rate. Revenues per capita, our measure of municipal funds available for community services, had a real growth of 6 percent in the 1970s and a 14 percent real growth in the 1980s. At the same time, the property tax rate declined significantly. Of course, taxes increased substantially during the period, but not as rapidly as the rise in property values. However, property taxes as a share of total revenues grew in the 1980s, reflecting the declining role for state revenue transfers in the average community. Note also that the business share of the tax base hardly changed at all because of the substantial simultaneous increase in the residential tax base. Thus, the primary benefits of growth were reflected in enhanced residential property values, more tax base per employee, and the ability to sustain some real growth in revenues despite a drop in property tax rates.

Rural areas in general shared in these growth benefits. The communities in MCD7 continued to have the lowest tax rates in the region, but still managed a tax reduction while lifting their municipal revenues per capita during the 1980s (Table 9). The more sparsely settled towns and boroughs also achieved the greatest gains in residential property values and business tax base per employee. Despite their significant growth in commercial and industrial property, rural communities in MCD7 differed little from the rest of the region in terms of changes in business share of tax base or property tax share of revenues. As in the other growing portions of the region, the lion's share of benefits during the growth surge were reflected in the appreciation of residential values.

Table 8. Growth Indices for Municipality Groups

| | Aggregate Values | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | *MCD 1* | *MCD 2* | *MCD 3* | *MCD 4* | *MCD 5* | *MCD 6* | *MCD 7* | *Total* |
| **1980 Levels** | | | | | | | | |
| Employment | 782,532 | 130,968 | 88,292 | 409,426 | 221,130 | 593,844 | 135,990 | 2,358,033 |
| Population | 1,755,653 | 340,850 | 148,414 | 1,048,027 | 415,078 | 1,297,970 | 504,092 | 5,487,248 |
| Tax Base (VAL) millions 1980 $ | 17,078 | 6,691 | 4,261 | 22,866 | 12,870 | 32,716 | 14,295 | 110,253 |
| **Growth Indices—absolute changes 1980-87** | | | | | | | | |
| 1. Employment (EMP) | -1,729 | 18,622 | 14,075 | 62,147 | 63,933 | 189,393 | 62,827 | 408,754 |
| 2. Population (POP) | -28,056 | -6,410 | 952 | -18,792 | 8,875 | 101,938 | 97,800 | 156,308 |
| 3. Tax Base (VAL) millions 1980 $ | 11,052 | 4,707 | 3,143 | 15,876 | 10,577 | 24,878 | 12,875 | 83,011 |
| **Growth Indices—relative changes 1980-87 (%)** | | | | | | | | |
| 4. Employment (EMP) | -1 | +14 | +16 | +15 | +29 | +32 | +46 | +17 |
| 5. Population (POP) | -2 | -3 | +1 | -2 | +2 | +9 | +24 | +3 |
| 6. Tax Base (VAL) 1980 $ | +65 | +70 | +74 | +69 | +82 | +76 | +90 | +75 |
| n = | 28 | 44 | 56 | 56 | 57 | 48 | 76 | 365 |

**Table 9.** Benefit Indices for Municipality Groups

| | Aggregate Values | | | | | | |
|---|---|---|---|---|---|---|---|
| | *MCD 1* | *MCD 2* | *MCD 3* | *MCD 4* | *MCD 5* | *MCD 6* | *MCD 7* |
| **Benefit Indices—1980 Levels** | | | | | | | |
| 1. Revenues per Capita (BREV) | 703 | 687 | 820 | 759 | 934 | 834 | 862 |
| 2. Property Tax Rates (TXVAL) | 35.51 | 25.19 | 20.36 | 26.94 | 23.20 | 24.32 | 21.41 |
| 3. Residential Values per Capita (BRES) | 5,816 | 15,166 | 20,425 | 17,031 | 22,459 | 17,318 | 19,377 |
| 4. Commercial & Industrial Tax Base per Employee (ECOMIND) | 8,359 | 10,858 | 12,505 | 11,347 | 13,781 | 14,613 | 19,826 |
| 5. Commercial & Industrial Share of Tax Base (pCOMIND) | 0.38 | 0.21 | 0.26 | 0.20 | 0.24 | 0.27 | 0.18 |
| 6. Property Tax Share of Total Revenues (pPRTX) | 0.49 | 0.72 | 0.71 | 0.77 | 0.77 | 0.73 | 0.70 |
| **Benefit Indices—1987 Levels** | | | | | | | |
| 7. Revenues per Capita (BREV) | 743 | 810 | 980 | 883 | 1,102 | 959 | 1,016 |
| 8. Property Tax Rates (TXVAL) | 24.74 | 17.85 | 14.96 | 18.85 | 15.86 | 17.88 | 16.74 |
| 9. Residential Values per Capita (BRES) | 9,894 | 26,802 | 36,080 | 29,478 | 39,493 | 28,299 | 31,588 |
| 10. Commercial & Industrial Tax Base per Employee (ECOMIND) | 13,410 | 15,258 | 17,791 | 16,528 | 20,677 | 20,035 | 25,217 |
| 11. Commercial & Industrial Share of Tax Base (pCOMIND) | 0.37 | 0.20 | 0.21 | 0.20 | 0.23 | 0.27 | 0.18 |
| 12. Property Tax Share of Total Revenues (pPRTX) | 0.54 | 0.75 | 0.76 | 0.80 | 0.80 | 0.77 | 0.74 |
| **Benefit Indices—absolute changes 1980-87** | | | | | | | |
| 13. Revenues per Capita (BREV) 1980 $ | 40 | 123 | 160 | 124 | 168 | 125 | 154 |
| 14. Property Tax Rates (TXVAL) | -10.79 | -7.34 | -5.40 | -8.09 | -7.34 | -6.44 | -4.67 |
| 15. Residential Values per Capita (BRES) (1980 $) | 4,078 | 11,636 | 15,655 | 12,447 | 17,034 | 10,981 | 12,211 |
| 16. Commercial & Industrial Tax Base per Employee (ECOMIND) (1980 $) | 5,051 | 4,400 | 5,286 | 5,181 | 6,896 | 5,422 | 5,931 |
| 17. Commercial & Industrial Share of Tax Base (pCOMIND) | -0.01 | -0.01 | -0.05 | 0.00 | -0.01 | 0.00 | 0.00 |
| 18. Property Tax Share of Total Revenues (pPRTX) | 0.05 | 0.03 | 0.05 | 0.03 | 0.03 | 0.04 | 0.04 |
| n = | 28 | 44 | 56 | 56 | 57 | 48 | 76 |

**Table 10.** Municipal Services Expenditures, 1970-87 (1970 $)

| | | **Fire** | | | **Police** | | | **Streets & Drainage** | | | **Sewage** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *MCD 1* | *1970* | *1987* | *1970-87 %* | *1970* | *1987* | *1970-87 %* | *1970* | *1987* | *1970-87 %* | *1970* | *1987* | *1970-87 %* |
| 1 | 8.86 | 34.21 | 286 | 32.53 | 42.82 | 32 | 12.99 | 12.40 | -51 | 5.35 | 18.68 | 249 |
| 2 | 2.15 | 8.84 | 311 | 29.18 | 54.11 | 85 | 16.58 | 18.50 | 12 | 6.12 | 13.62 | 123 |
| 3 | 2.81 | 7.42 | 164 | 22.26 | 44.88 | 102 | 16.87 | 24.22 | 44 | 2.62 | 8.70 | 232 |
| 4 | 2.92 | 12.42 | 325 | 24.44 | 40.29 | 65 | 13.52 | 15.09 | 12 | 5.54 | 14.15 | 155 |
| 5 | 2.25 | 7.24 | 222 | 26.15 | 49.19 | 88 | 17.55 | 20.42 | 16 | 2.23 | 11.28 | 406 |
| 6 | 1.61 | 8.27 | 414 | 21.85 | 39.47 | 81 | 17.88 | 17.59 | -1 | 3.00 | 6.87 | 129 |
| 7 | 2.87 | 5.05 | 76 | 8.63 | 22.56 | 161 | 29.81 | 28.48 | -4 | 0.65 | 2.70 | 315 |
| Total | 3.41 | 10.08 | 196 | 22.07 | 40.60 | 84 | 18.85 | 20.54 | 9 | 3.32 | 9.89 | 198 |

| | | **Garbage** | | | **Municipal Functions** | | | **Property Taxes Relative to Income (%)** | |
|---|---|---|---|---|---|---|---|---|---|
| *MCD 1* | *1970* | *1987* | *1970-87 %* | *1970* | *1987* | *1970-87 %* | *1970* | *1987* | *1970-87 %* |
| 1 | 8.21 | 8.87 | 8 | 152.81 | 213.84 | 39.9 | 7.7 | 5.9 | -23 |
| 2 | 8.90 | 16.66 | 87 | 111.39 | 190.33 | 70.9 | 6.8 | 6.0 | -12 |
| 3 | 9.45 | 18.61 | 97 | 105.30 | 193.22 | 83.5 | 7.5 | 6.1 | -19 |
| 4 | 6.85 | 13.08 | 91 | 105.46 | 173.44 | 64.5 | 6.6 | 5.9 | -11 |
| 5 | 5.14 | 12.00 | 133 | 95.94 | 186.05 | 93.9 | 7.6 | 6.5 | -14 |
| 6 | 4.56 | 9.13 | 100 | 99.73 | 160.32 | 60.8 | 8.4 | 6.3 | -25 |
| 7 | 1.32 | 3.17 | 140 | 80.70 | 138.23 | 71.3 | 9.2 | 6.2 | -33 |
| Total | 5.91 | 11.33 | 92 | 102.63 | 174.80 | 70.3 | 7.8 | 6.2 | 21 |

### The distribution of costs from growth

Expenditures for municipal services have also increased by a wide margin. In the predominantly rural communities, MCD 6 and MCD 7, per capita expenditures for fire, police, sewage, and garbage services more than doubled and the overall costs for municipal functions rose by 71 percent in the 1970 to 1987 period (Table 10). While expenditures rose even faster in the more affluent suburban areas in MCD3 and MCD5, the increasing costs of growth in the fringe areas underscore that initial growth stages are accompanied by substantial added costs as well as benefits. Offsetting these costs to some extent has been the fact that the rural MCDs have benefited relatively from the 1970-87 growth period as measured by the ratio of property taxes to personal income. In 1970, residents of MCD7 paid a substantially higher portion of their income in local property taxes than the rest of the region; by 1987, these rural communities had achieved parity with the regional average.

## Conclusions

The rural fringe of an expanding metropolitan area has a strong comparative advantage over more isolated rural regions. The locational advantages at the rural fringe can mean escalating land values, diversity in job opportunities, and enhanced public services without higher property taxes. The potential hazards of proximity that are documented in the literature include harmful land use, added congestion, higher public service costs, community social change, and some dimunition of rural interest preferences in local government. This study has examined the pushes and pulls of development at the rural fringe of a metropolitan area that has experienced both rapid economic growth and considerable decentralization.

For the rural fringe areas, as for the suburban and urban sections of metropolitan areas, growth is an intermediate objective for obtaining a variety of desired benefits. The empirical results for the study area generally confirm our assumptions about the evolving market niche of the rural fringe zones and the effects of the expanding metropolitan frontier. Rural communities shared in the region's growth and its benefits. Marginal changes in the distribution of benefits and costs were generally consistent with the distribution of economic growth. Sparsely settled rural fringe areas gave freer rein to developers who converted large amounts of farm and vacant land into commercial and residential tracts. Here property appreciated in value, and part of the tax burden was shifted to commercial firms and new residents.

Rural localities achieved a share of the region's growth benefits on the basis of their ability to attract local growth directly, through spillovers from neighboring growth, and from intergovernmental transfers. The analysis confirmed the prevalence of both infill and dispersed types of development during the growth surge of the 1980s. Some infill occurred in inner suburbs but the most substantial growth took place in the fringe areas favored by large tracts of developable and accessible land.

The distribution of gains from growth were not quite as uneven across the set of benefit indicators. The communities with the most substantial job and tax base growth gained significantly across all but one of the measures, the share of revenues derived from local property taxes. The largely rural communities at the fringe of development received more population than employment growth and were beginning to realize measurable growth benefits.

Among the more general findings from the analysis are: significant unevenness of local growth even during a rapid regional growth surge; wider and more diverse distribution of benefits from growth than from job or tax base growth per se; stability of benefit levels and their wide distribution among the communities despite uneven growth; and significant gains achieved by communities which had little or no local growth.

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# Farm, Woods, and Town: the Environs of *Walden*

William Howarth*

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> Our village life would stagnate if it were not for the unexplored forests and meadows which surround it. We need the tonic of wildness—to wade sometimes in marshes where the bittern and the meadow-hen lurk, and hear the booming of the snipe; to smell the whispering sedge where only some wilder and more solitary fowl builds her nest, and the mink crawls with its belly close to the ground. At the same time that we are earnest to explore and learn all things, we require that all things be mysterious and unexplorable, that land and sea be unfathomable. We can never have enough of nature. We must be refreshed by the sight of inexhausible vigor, vast and titanic features, the sea-coast with its wrecks, the wilderness with its living and decaying trees, the thundercloud, and the rain which lasts three weeks and produces freshets. We need to witness our own limits transgressed, and some life pasturing freely where we never wander.[1]

In the year 1844, when James Polk became America's eleventh president, and Samuel Morse strung the first telegraph between Baltimore and

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[1] Henry David Thoreau, *Walden and Other Writings*, ed. William Howarth (New York: Modern Library, 1980), p. 283. All parenthetical references are to pages of this edition.

Washington, a young man spent several months looking to buy some land in the vicinity of Concord, Massachusetts. His name was Henry David Thoreau. He was 27 years old, a bachelor, an honors graduate of Harvard College, and a onetime schoolmaster. He was also a carpenter, gardener, and stonemason; a singer and flute player; a reader of six languages, and an author of several poems and essays—none of wide circulation. A man with many talents, but no profession or steady income, he was looking to take up a farm.

Agriculture is an inauspicious trade in New England, where thin soil and harsh winters have discouraged generations of farmers, even the old true-believing Pilgrims. Looking for a Yankee bargain, Thoreau spent several months in 1844 inspecting local properties. He walked over the countryside, took notes on acreages of hay and oats, and estimated the yield of woodlots. Finally he settled on a farm owned by Mr. Hollowell. Agreeing to ten dollars paid upon occupancy, the men shook hands. Thoreau went home to sort his seeds and build a wheelbarrow, but soon the deal collapsed. Apparently Mrs. Hollowell had not been consulted and took no fancy to moving. Hollowell offered Thoreau ten dollars to void the contract. Here is his end of the story:

> Now, to speak the truth, I had ten cents in the world, and it surpassed my arithmetic to tell, if I was that man who had ten cents, or who had a farm, or ten dollars, or all together. However, I let him keep the ten dollars and the farm too, for I had carried it far enough; or rather, to be generous, I sold him the farm for just what I gave for it, and, as he was not a rich man, made him a present of ten dollars, and still had my ten cents, and seeds, and materials for a wheelbarrow left. I found thus that I had been a rich man without any damage to my poverty. But I retained the landscape, and I have since annually carried off what it yielded without a wheelbarrow. (74)

This passage records a rare moment of Americana, when a writer and a farmer strike a bargain, and *both* manage to save their shirts.

Thoreau never again seriously considered farming, but he was determined to find a quiet, solitary place to live and write. He sought a home with water, trees, and nearby fields; with plenty of sunshine to spill in his door when the days were warm and breezy. Thus in early 1845 he spoke to his friend and townsman, Ralph Waldo Emerson, about occupying a piece of Emerson's woodlot on the northern shore of Walden Pond. The acres lay on a sandy slope covered with dense woods, mixed conifer and broadleaf, that offered an ample supply of fuel and shelter.

In March Thoreau began to cut down some "tall, arrowy white pines" (36) for timbers. From the outset he followed regional customs, by adopting a post-and beam design and borrowing most of his materials: Emerson's land, an axe from Bronson Alcott, and lumber from the woodlot. In keeping with Yankee frugality, Thoreau's only purchase was of recycled goods: he bought the vacated shanty of James Collier, an Irish railroad worker, then tore it down and carted the boards, bricks, and glass to Walden Pond.

On his sloped site he built a small but meticulous house, ten feet wide and fifteen long, with a full attic above and a root cellar below, shingled from top to bottom with split cedar shakes. He used the site to take full advantage of sunshine: windows on the east and west, with a doorway to the south, providing light and warmth. On the cool, shaded north wall he left space for a fireplace, completed before the first winter. His cost was a bit over $28, less than a year's rent for a house in town.

In May Thoreau cleared two and a half acres of sandy soil on a nearby bluff and planted his crops: beans, potatoes, peas, corn, and turnips. The last two failed, but the rest yielded over thirty bushels, or plenty for both food and cash. After his first harvest he turned a small profit, enough to boast later on that he was "more independent than any farmer in Concord" (50). After all, he reasoned, if his crops failed and the house burned down, his assets would be the same as when he started. In this thinking he echoed New England's early settlers, whose farms were stable, small-scale, and devoted to subsistence more than profit.

Thoreau moved to Walden on July 4, Independence Day, fully aware of his cultural symbolism, and he lived beside the pond for two full years. During that time, masses of rural people began to change the face of North America. A potato famine in Ireland drove many labor migrants to New England; John Deere's invention of a steel plow encouraged settlement of the prairies from Ohio to Illinois. At Walden, Thoreau kept to his own pastoral routine: mornings to write; afternoons, to read or hoe in the field. Evenings he swam or walked, depending on the season. And so his days passed until September of 1847, when he returned to village life once more.

Over the next seven years Thoreau composed multiple drafts of a book on his "experiment" (288) at Walden, finding in this repetitive process that writing, like farming, was an act of intensive cultivation. His literary work transformed the original sojourn into *Walden, A Life in the Woods,* published in 1854 and today numbered among the great American books. Yet of our major literary classics, *Walden* probably remains the one that is least known, read, or understood.

I draw that inference from many years of teaching this text to what appear to be two opposing camps of readers. The first sees *Walden* as a defiant manifesto, urging us to drop out at once and go seek our private Arcadia. The second holds that *Walden* is a bitter diatribe, written by a "hermit" who was a bad economist and a misanthropic philosopher. Both views are literal and reductive, and they assume that *Walden* is fundamentally anti-social. Many literary critics have repeated these beliefs, but of course with greater sophistication.

Of the two responses, the first is easier to challenge. Thoreau himself often indicates in *Walden* that he is not writing a literal history, but a symbolic fable. He compresses his two-year sojourn into one, "for convenience" (76) in story-telling. To create emphasis he expands, juxtaposes, and re-arranges events, many of them occurring after 1847. While addressing the book "to poor students" (4), he is not looking for disciples in that audience. His high esteem for self-reliance holds that human fortunes are always solitary. Yet his book does have a collective weight, resembling a vision quest that passes through the ritual stages of isolation, purification, contemplation, and revelation. The narrative form of *Walden* affirms that arching motion by shifting repeatedly, from town to the woods, then back again.

Which leads to the second response, that *Walden* is misanthropic. In the first place, the book exists; it is an act of sharing and communication. Thoreau gives "a simple and sincere account" (3) to his readers, and he firmly states that "I am naturally no hermit" (127). Social isolation was impossible for him, given the environs of Walden. Lying but two miles from Concord, the pond was flanked by roads and a railroad track, which provided steady traffic. Throughout the seasons Concordians used Walden as parkland, a place to pick berries, fish and swim, hunt or trap. For his frequent visitors Thoreau kept three chairs, "one for solitude, two for friendship, three for society" (127). In the summer of 1846 he hosted in his dooryard a large antislavery meeting. Having built on the shore nearest town and the railroad track, he often walked home to visit and dine with his family, before returning to the woods.

. . .Thoreau kept three chairs,
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three for society". . .

One chapter, "The Village," describes in general terms Thoreau's many trips to town: he runs errands to the post office, bank, and grocery store; stays late with friends to gossip, "learning the kernels and very last sievefuls of news" (153), and then sets out for Walden, finding his way home through the dark, tangled woods. Many nights he walks a faint path by instinct or trained habit, distracted with thought yet guided by his feet so accurately that he passes "between two pine trees for instance, not more than eighteen inches apart, in the midst of the woods, invariably, in the darkest night" (153). His tracking becomes so adept that often he walks the entire distance home and cannot remember a step. Yet when the situation is reversed, and his visitors to Walden depart for town, they often become lost in the woods, wandering half the night in rain and mud not far from their destinations.

Such praise of his skills, and disparagement of others, makes Thoreau seem anti-social; but we should read on. For in telling the stories of his lost visitors he begins to *identify* with them, opening into broader thoughts on the philosophy of orientation. Being lost in the woods, he recognizes, provokes an intellectual crisis, in which surprise and confusion challenge one's customary habits. Yet such ignorance and humiliation may also lead to understanding: "not till we are completely lost, or turned around . . . do we appreciate the vastness and strangeness of nature" (154). This idea suggests to him that mystery prompts all knowledge, and that we learn chiefly through paradoxes. Being lost, we stand apart from nature, but we also see our part in its totality. "Not till we . . . have lost the world, do we begin to find ourselves, and realize where we are and the infinite extent of our relations" (155).

For me, this passage about relations verifies that Thoreau was an environmental writer, as opposed to the early and largely anthropocentric tradition of "nature writing," for *Walden* celebrates a cluster of ecological relations. The book itself is a narrative relation, a story told, or related, by its author to readers. He tells of the social and intellectual relations he builds with neighbors, visitors, friends, books; the sources from whence he borrows facts, ideas, tropes, and words; his tools as a writer. Above all Thoreau writes about natural relations, the links he discovers between plants and animals, land and water. Each of his great moments of encounter, from chasing a loon to recovering the pond's "long lost bottom" (255) repeats an arc of revelation: loss, finding ourselves, realizing our locus, and "the infinite extent of our relations." Through that experience he laid the psychological and spiritual foundations for ecology, a field of knowledge that maps the complex web of nature's relations, and our human impact upon them.

I have raised the ghost of Henry Thoreau here, at midday in Pennsylvania, because for the past few years the National Rural Studies Committee has invited me to come to its annual meetings and speculate, generally after lunch, about how American writers depict the land and those who live upon it; how they define the tug of earth upon our imaginations, the place of it in our daily lives.

Given this year's northeastern location, and the conference theme, "Rural Areas in an Urbanized Region," it seemed appropriate to consider Thoreau; since Walden was not a wilderness site, but a woods and pond lying near a small New England town.

Thoreau came and went easily from his rural, suburban setting, a place that bordered pastures and cropfields. Positioned on that boundary between the civil and the wild, he came to understand, in both a practical and spiritual manner, just what "environment" is: a surroundings, all that lies in and around us; a place that envelops humanity and defines both where and who we are.

In *Walden* Thoreau entitled one of his chapters "Where I Lived, and Why I Lived There," and that phrase could serve as a motto for his entire career. Each of his books depicts a "where," a place invariably set in New England, and seeks to measure the "why" of that locus. Thoreau is the literary surveyor of northeastern America, for he devoted his writings to examining its bioregional features. The cool, temperate climate with four distinct seasons *(Walden)*, the glaciated surface of rocky upland *(The Maine Woods)* and sandy coast *(Cape Cod)*, the inland waters of springs, lakes, rivers *(A Week on the Concord and Merrimack Rivers, A Yankee in Canada)* and the vegetative zones of marshes, meadows, forests *(Excursions*, "The Dispersion of Seeds") all shaped the purpose, form and content of his works.

> . . . knowing where we live
> also teaches us
> why and who we are. . .

The genius of place, Thoreau found, is that knowing where we live also teaches us why and who we are. Just as habitat defines a species, locus provides our minds and characters with identify. Often he uses the rhetorical figure of synecdoche, the part that implies a whole, to suggest that a finite space is also universal. In *Walden* he turns his environs—farm, woods, town—into a mythic ground, where he can "brag for humanity" (44). Hence Walden Pond is both local and global, a pond "with a hard bottom and rocks in place, which we can call *reality*" (88), and also "made deep and pure for a symbol" (256), having a hidden interior, "looking into which, the beholder measures the depth of his own nature." (168).

Thoreau identifies such parallel thinking as "home-cosmography" (286) and states "I have traveled a good deal in Concord" (4), meaning he made much of its twenty-six square miles, but also that his environs expressed great harmony, the concordant unity of nature. Such ideas would seem mystical or fanciful, were it not for the fact that Thoreau derived them from exacting technical studies, recorded in his personal Journal, of Concord's geography and population biology. Before his untimely death, at the age of 44, he wrote what scientists now recognize as pioneering papers in field ecology, defining with rare literary eloquence such processes as the natural succession of species, and their dispersal within habitats.

At Thoreau's funeral, Emerson gave the eulogy and lamented that his friend had wanted for ambition: "Instead of engineering for all America, he was the captain of a huckleberry party." Yet in his own way and time, Thoreau created environmental writing, a bridge between literature and earth science that has since grown into an American cultural tradition. The themes of such successors as John Burroughs and John Muir owe much to Thoreau, who insisted in his work on the central significance of place, especially those wilderness zones devoid of human occupation or influence. He asked that we see nature as non-human, not a ground for us to mould, but one that profoundly shapes us. Later writers such as Aldo Leopold have urged us to "think like a mountain," or, in the words of Annie Dillard, to "teach a stone to talk." They see that the human obligation is to speak for silent places, to relate in words "the infinite extent of our relations" with our surroundings. Thoreau found that way for himself when he got lost in the woods, somewhere between a farm and town.

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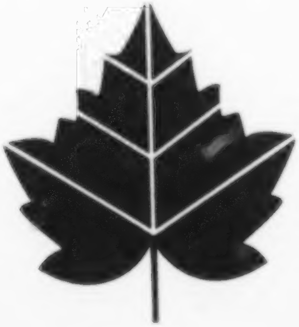
# Land Use Conflicts at the Rural-Urban Border: The Agglomeration Argument

William A. Fischel



Think Globally, Act Locally" reads a bumper sticker popular among environmental activists. (The motto could apply to any activist, of course, but it is usually paired with something like a Greenpeace sticker.) One of the favorite global issues is preservation of farmland from urban encroachment, and its local manifestations are programs that employ land-use controls, tax policy and, occasionally, outright purchase, to preserve farmland in a locality. I want to argue in this paper that such local programs, particularly the exclusive agricultural zones, may be globally unsound. They may contribute to rather than prevent metropolitan sprawl. By sprawl I mean low-density development that is not contiguous to existing urban development. This pattern may reduce the productivity of both urban businesses and agricultural activities.

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## Urban activities don't use much land

To grasp my argument, it is necessary first to garner some facts about urban development and the American system of land use controls. The first and perhaps most important fact to inform any farmland preservation policy discussion is that there is almost no danger that the extent of U.S. urbanization will threaten the total stock of farmland in this or the next century. Urbanized land and built-up rural areas (mostly roads) amount to less than four percent of the U.S. land area, not counting Alaska. Contrary to vigorous alarms sounded ten years ago by the National Agricultural Lands Study (NALS 1981), the rate of conversion of rural land to urban uses did not increase in the 1970s and early 1980s. The data expounded by the NALS have been disowned by researchers in the agency that produced them (Dunford 1983; Lee 1984).

Urbanized land and built-up rural areas amount to less than four percent of U.S. land area. . .

The current USDA estimates of urbanization of land area are less than one million acres per year (Vesterby and Brooks 1988), a drop in the proverbial bucket of the two billion acres that comprise the U.S. land area. Detailed studies by the Economic Research Service of the USDA of counties that grew rapidly between 1960 and the early 1980s show that the amount of land urbanized per housing unit has stayed almost constant; there is no evidence of increasing land consumption per household in more recent years (Vesterby and Heimlich 1989). I cannot resist noting that the data in the two USDA studies just cited above almost exactly correspond to my estimate of rural land conversion rates in my critique of the NALS data (Fischel 1982, p. 247).

There is reason to believe, moreover, that suburban expansion onto rural land will slow down in the 1990s and beyond. Demographic trends foretell a reduction in household formation and housing demand in the next two decades. The baby-boom generation of 1946-64, whose largest cohort was born in 1957, are now adults, and most of them have a home already. They may be expected to trade-up for better quarters as they mature, but the need for new construction will be significantly less than it was in the 1970s and 1980s. Because housing accounts for about sixty percent of urban land use, rural land conversion in the future will probably be less than in the past two decades on this account.

To get a better feel for the demographic factors, consider Table 1, which shows the size and projected growth of the American population aged 25-34, the prime years for household formation. This cohort grew most rapidly in the 1970s, when their number increased by 50 percent in ten years. That growth fell to 17 percent in the 1980s, and one may confidently project that by 2000, the number of people in the age interval 25-34 will have *decreased* by about eight percent.

The smaller size of the age group in 2000 is the result of family planning decisions made in the 1960s. This is why we can be reasonably confident about the projections: death rates are predictable, and immigration is a relatively modest factor in determining cohort size. In the longer run, we know that average American fertility rates have been below replacement rate since the early 1970s. Without immigration, we would eventually have negative population growth in a few decades.

**Table 1.** Number of people aged 25-34, projected to year 2010 for U.S.A.

| | number | change in decade |
|---|---|---|
| 1960 | 23 million | +9 percent |
| 1970 | 25 million | +50 percent |
| 1980 | 37.5 million | +17 percent |
| 1990 | 44 million | - 8 percent |
| 2000 | 37 million | +1 percent |
| 2010 | 37.5 million | |

Source: U.S. Bureau of Census, *Current Population Reports*, series P-25, various years.

A second important fact is that most of the U.S. population lives in urban areas. Sixty percent of the U.S. population lives in what the Census calls "Urbanized Areas." These are the closely and contiguously settled parts of metropolitan areas, which are known technically as Metropolitan Statistical Areas or MSAs.) Metropolitan areas are counties (or, in New England, towns) surrounding a central city or cities of at least 50,000 people. Three quarters of the U.S. population lives in metropolitan areas. Urbanized Areas in 1980 took up less than two percent of the U.S. land area; metropolitan areas occupied sixteen percent. Thus most of the land area of metropolitan areas is not thickly settled. Indeed, the majority of the land area of all but the very largest metropolitan areas is arguably rural.

Even if cities do not grow, they continue to spread out. While I will argue presently that some degree of suburbanization is a bad thing, it must be emphasized that suburbanization has been going on for almost a century, and it is the norm in almost all other countries, as well. Urban economists and historians agree that suburbanization began long before widespread use of the automobile, zoning, the level payment mortgage, or the income tax (Mills and Hamilton 1989, p. 375). No realistic policy should be based on the premise that suburbanization can or should be reversed. The issue is whether some policy might be adopted to keep excessive suburbanization from reducing the efficiency of the farm and the city.

Another important fact is that the size-distribution of metropolitan areas is highly skewed. Although there are more than 300 metropolitan areas, over fifty percent of metropolitan population lives in the twenty largest. For this reason, we must be cautious in extrapolating the land-use stories from one metropolitan area to another. For example, that in the middle 1970s, proximity to Chicago measurably affected agricultural land prices forty miles from its central business district (Chicoine 1981) must be qualified by the fact that Chicago is the nation's third largest metropolitan area, with an estimated population in 1986 of more than 8 million people. Land parcels forty miles from the centers of smaller metropolitan areas, such as Cleveland (2.8 million people in 1986), Pittsburgh (2.3 million), and Hartford (1.0 million), are less likely to be similarly influenced. The radical inequality in metropolitan area sizes implies that it is not acceptable to apply the results of rural-urban land conversion studies from the largest metropolitan areas to smaller areas in the rest of the country.

An example of the neglect of the size distribution of cities is a study by Vining, Plaut and Bieri (1977). They tallied all of the farmland within 50 miles of the center of the 100 largest urbanized areas, suggesting that all such land was equally at risk of conversion. Their procedure, however, greatly overstates the amount of farmland likely to be affected by urban uses. Chicago, the third largest Urbanized Area, was 1277 square miles in land area in 1970. If arrayed in a circle (i.e., neglecting Lake Michigan and the ink-blot spikes of population), Chicago's contiguous built up area would have a radius of 20 miles. For Cincinnati, the twenty-first largest Urbanized Area, the corresponding radius would be 10 miles, and for Harrisburg, the eighty-second largest, the radius would be 6.5 miles. If we extrapolate Chicoine's aforementioned finding as a rule of thumb and assume that cities influence agricultural land values at twice the radius of the contiguous area, only a modest fraction of farmland in the U.S. is subject to urban influences.

## Leapfrog development and urban-agricultural conflicts

Although data on urbanization and suburbanization show that there is no reason to believe that the suburbs will swallow up the farms, there are some important issues regarding the location of suburban development. Much suburban development appears to occur in isolated patches outside the urbanized area. The process is called leapfrog development.

I will explore the reasons that this may be an inefficient pattern. This is a delicate argument, because it is likely that much leapfrog development is efficient. The open area between the new development and the urban boundary may soon be filled in by higher density development. If it were insisted that all development occur immediately adjacent to existing urban areas, then the resulting density might be too low. (The theory was developed by Ohls and Pines [1975] and David Mills [1981]. Recent evidence for this is Richard Peiser [1989], whose results I put in the anti-sprawl policy context in Fischel [1991].)

Even allowing for the possibility that some leapfrog development is efficient, it must be conceded, at least impressionistically, that there may be too much leapfrog development. Suburban counties with much remaining open space are being skipped over as extensive development occurs in more remote counties, suggesting leaps by a frog with seven-league boots. In aerial photographs or the view from airplanes a lot of leapfrog development looks like it will never be subject to later infill development.

The leapfrog-without-infill pattern has drawbacks for both farmers and residents. The drawbacks are the loss of agglomeration economies in both sectors of the economy. Before explaining agglomeration, I want to deal with two supposed drawbacks to the leapfrog pattern of development that I believe are overrated.

One is the "impermanence syndrome," a term I first encountered in an article by David Berry (1978), who presented some circumstantial evidence from the Philadelphia area in support of it. Farmers who anticipate that their land will be sold to a developer and houses put on the land are said to stop maintaining their agricultural investments. The previously planned silo does not get built, and the barn does not get painted.

Stated as such, the impermanence syndrome suggests nothing more than that farmers are just as rational as the rest of us. If you were planning to completely remodel your kitchen two years from now, you wouldn't put a lot of time and money into fixing-up the present cabinets. Anticipation of changing conditions promotes efficiency by directing long-term capital away from activities that have only short-term benefits.

There are more sophisticated versions of the impermanence syndrome. One holds that farmers tend to anticipate too much change and so reduce investment when they should instead maintain it. Another version suggests that reduced agricultural investment causes some undesirable spillover effects, such as increased soil erosion. Neither seems plausible.

The notion that some farmers are myopic is hard to gainsay; the relevant question is, who is in a better position to decide what the most profitable use of the land is aside from its owner? Like other challenges to the profit-maximizing assumption of economics, the response is, if not them, then who? The spillover from neglected land argument has a more respectable pedigree in economics, but it suffers in this instance from a complete lack of evidence. Most farm spillovers are created by active farming, such as soil erosion from plowing and windblown and waterborne pesticide pollution. Presumably the laws regulating such activities are not suspended when a farmer decides that his agricultural tenure is short. Nor would it seem rational for a farmer to forego investments in pollution-reducing capital. Offering for sale land that is in desperate need of pollution control is, in this age of environmental liability, likely to result in a lower selling price regardless of who the buyer is.

In any event, the empirical evidence on whether there is any impermanence syndrome at all is weak. The survey of evidence by Andrews and Lopez (1988), whose own work suggested there was some farmer disinvestment in the face of urbanization (they did not address whether it was efficient disinvestment), concludes that the evidence is "mixed." The work of William Lockeretz (1989) casts doubt on the existence of the syndrome, primarily because he sees offsetting benefits for farming in metropolitan areas, so that farmers do not passively respond to expected changes by disinvestment. Invoking the impermanence syndrome against suburban leapfrog development is unpersuasive.

The other argument against suburban leapfrog patterns is that it causes too much commuting, with its attendant congestion and pollution costs. I used to subscribe to this, but the facts got in the way of my belief. There is little evidence that the suburbanization of residents in the 1970s or 1980s has made for longer commutes (Gordon, Kumar, and Richardson 1989). The reason is that jobs have suburbanized as rapidly as people. Most suburban residents do not commute to central cities; they commute to another suburb. The image of the stockbroker who rises with the chickens to get to work in the central city from her country home is a fine Sunday-supplement story, but it characterizes only a tiny fraction of the suburban workforce.

> . . .there are productive advantages to working in close physical proximity to one another.

I think that cost of leapfrog development is more subtle than harried commuters or uncertain farmers. My main worry is those jobs that follow the residents to the suburbs. The reason we have cities at all is that there are productive advantages to working in close physical proximity to one another. The advantages are called agglomeration economies, or the external benefits that result from close physical proximity (Mills and Hamilton 1989, p. 19).

Agglomeration economies are not the same as scale economies. Some scale economies involve agglomeration economies. In order to achieve the scale economies of mass production in the manufacture of automobiles, it is necessary to have workers in close physical proximity to one another on an assembly line. But other scale economies do not require physical proximity. A telephone network is more efficient the larger it is, but physical proximity is an inconsequential aspect of the scale economies involved.

Agglomeration economies do not necessarily involve scale economies, either. The advantages of close physical proximity can be achieved by even the smallest competitive firms. The joke example is of the only lawyer in the small town who nearly starved until a competitor arrived, and then they both prospered. The real example can be seen in the number of shoe stores that crowd together in the same shopping mall or downtown area. The concentration of stores brings in more customers per store and makes it easier for suppliers to provide specialized services to the stores, advantages that outweigh the disadvantages of being next to their competitors.

Urban agglomeration economies may also have more profound effects on national economic wellbeing through their effects on research and innovation. Big ideas are most often generated in big cities, contrary to the notion of the lone genius. A recent economic study by Adam Jaffe (1989) showed that universities in large cities generated more commercial patents than similarly sized universities in rural areas, providing support for Jane Jacobs' thesis (1969) that the primary economic function of cities is to be incubators for new ideas. Aside from this, empirical work by urban economists shows that agglomeration economies that augment manufacturing productivity are substantial (Calem and Carlino 1991).

The full range of policy issues arising from urban agglomeration economies is not clear, though. Does it suggest that more people should live in cities, or that big cities should become bigger? The primary policy implication, however, is simple: do not discourage cities from growing larger. This is relevant to the policies of a number of developing countries such as India and Brazil, which pursue policies to discourage urbanization, at least in existing cities (Henderson 1988). Developing countries are not the only ones. Much of Britain's land use policy in the post-World War II era was intended to discourage growth in London.

Although it is seldom stated in these terms, there may be agglomeration economies in agriculture, as well as in urban activities. If one farm is withdrawn from production, it may affect the viability of other farms. Milk collection may become more costly if there are only a few farms scattered about an area. Farm-supply firms may not have enough business to maintain outlets in declining agricultural areas. Farmer self-help organizations may dwindle for lack of a sufficient nucleus of members. Sharing of farm machinery or of the cost of specialized services such as bee pollination may become difficult if the density of farmers per square mile is reduced.

It is easy to misclassify the previous problems as part of the impermanence syndrome. Disagglomeration may cause farm investment to decline, but the source of the decline is not erroneous anticipation of farmland conversion. The source is a real increase in the cost of doing business as a farmer, which makes any investment less profitable.

The possibility of agglomeration economies in both urban and agricultural businesses supplies the elements of an efficiency rationale for discouraging leapfrog development patterns. The excessive decentralization of suburban workers may lead to a reduction in urban agglomeration, and the same excessive decentralization of housing may reduce agricultural agglomeration economies. Thus leapfrog development without infill may reduce agglomeration economies. This is a market failure in the sense that the reduction in productivity caused by the withdrawal of one market participant is not entirely perceived by the one who leaves the network. The analogy is of getting an unlisted phone number. The one whose number is unlisted retains most of the advantages of the phone system, but the system's utility to others is reduced by the smaller number of people who can be called.

The disagglomeration rationale against leapfrog development is, however, a tenuous and hazardous proposition. We do not know whether agglomeration economies for urban activities are eroded by the suburbanization of businesses. Perhaps as long as firms stay within commuting distance of other firms, they will get all of the advantages. We know even less about agglomeration economies for farming, and we are not sure that even if they are important, they could not be realized in the presence of mixed land uses. (The Jeffersonian township and range survey system, which isolated farms on square coordinates, seems hostile to agricultural agglomeration economies.) The proposition is hazardous because it could be employed to justify land-use policies that are quite harmful to both farmland owners and potential residents.

The way I choose to deal with the uncertainty about agglomeration economies is to focus on a policy that I believe more surely promotes excessive suburbanization than any other. These are the attempts to limit development in the close-in suburbs of metropolitan areas by means of uncompensated land-use regulations. I mean here growth controls that impede overall development, not the "good housekeeping" regulations that designate appropriate places for various kinds of land uses. (The issue and the economic evidence on growth controls are described in Fischel 1990.)

Growth control regulations are unlike other policies that add to suburbanization, which may more arguably serve some national purpose or be the result of some technological change. For example, the subsidies that the federal tax system gives to owner-occupied housing contribute to more suburbanization than we would otherwise have, but there are independent justifications for such subsidies—the political importance of widespread property ownership, the closer connection that owners have to their communities—that may offset the acknowledged inefficiencies. On the technological side, it could be that electronic communications make it less necessary for businesses to locate right next to one another in order to achieve agglomeration economies. Hence we cannot say that voluntary decentralization is a bad thing for urban purposes.

I focus below on local government land-use regulation rather than other farmland preservation policies because land-use regulations are the most important constraint (Atash 1987). Property tax reductions for farmland and other open spaces are almost universal among the states, but there is almost no evidence that this reduces the rate of farmland conversion (Mackenzie 1988). Right-to-farm laws are likewise ubiquitous and of doubtful efficacy in preserving farmland.

Purchase of development rights programs are limited to a few affluent places (Bushwick and Hiemstra 1987, p. 193), which I believe is fortunate. Because such purchases are legally irreversible, they are more likely than agricultural zoning to present a burden to future generations. The burden arises if it is found in the year 2020 that the reserved parcel is much more sensible for housing development than the unreserved parcels in less efficient locations. There are reasons that the traditional common law of property attempted to limit the dead hand of the past upon the future. This is not to say that compensated agricultural zoning should be disallowed, since compensation makes it fair to the farmer and makes the public perceive the correct cost of preservation. It is just that such zoning should not be legally irreversible.

### How farmland preservation causes leapfrog development.

To understand how growth controls work to defeat agglomeration economies, one must grasp some facts about the American system of land use regulation. Local government structure of most urban areas is generally fragmented. The largest metropolitan areas have hundreds of local, general-purpose governments. In nearly every state, and especially in the Northeast, local governments provide a wide range of services, and they also are permitted to adopt a wide range of local land use regulations.

The extent of local control over land use and municipal services is unusual to the United States. Few other countries, even democratic countries, are as decentralized. International observers are also impressed by the notion that the U.S. Constitution and most state constitutions seem to protect a right to develop. Most countries recognize that there is a right to own property and be compensated if the state takes it, but landowners in those countries are not usually assumed to have a constitutionally protected right to develop or redevelop it (Ogus 1990). This is believed by some authors to make a difference between land use controls in the U.S. and the rest of the world (Goldberg and Chinloy 1984, p. 237). Because developers have rights, it is said, U.S. land use planners have more difficulty in reigning in the suburban sprawl development that characterizes U.S. metropolitan areas.

I want to argue that the U.S. is different from the rest of the world in its development controls, but not just because of the effect of the Constitution. The Constitutional protection of property from excessive regulation is actually, in the words of Frank Michelman, the doyen of property law, "troubled and limited" (1988, p. 1628). Communities in most of the United States can in fact regulate property almost as thoroughly as Canada and the nations of western Europe.

The difference is that in the U.S., local governments must establish a legal justification for the regulation rather than do it without any judicial inquiry. The standard of review, however, is deferential to communities. As long as the court can think of some "reasonable relation" between the stated public purposes of the regulation and the regulation itself, it will be upheld on constitutional grounds. "Reasonable relation" does not require anything like benefit-cost analysis, nor would the regulation be struck down simply because the complaining landowner can show that a less burdensome means of accomplishing the public purpose could be found. Governments at all levels are presumed by the courts to be acting constitutionally, and developers are under a heavy burden of proof if they seek to persuade the courts otherwise.

The real difference between the U.S. and other countries is the level of government that adopts land use regulations. In Canada, for example, the provinces often adopt rural land use regulation. If Quebec wants to stop conversion of farmland in the Montreal area, it can do so without the permission of the local townships that are affected and without any need to compensate landowners (Vaillancourt and Monty [1985] analyze such an event.) In the United States, adoption of farmland zoning is almost always at the option of local government, even when it is encouraged by the states.

The power of local government is not derived from the Constitution; states that have wanted to preempt local control have not been told by courts that they cannot do it, and Federal legislation in this regard could easily be upheld under the Commerce Clause. What gives local governments their greater authority over land use in the U.S. is that we have a long tradition of it, and it is politically popular, at least when compared with state and national regulation.

The consequence of local control is that farmland preservation efforts are apt to cause leapfrog development. Here is the scenario. A local government in the path of suburban expansion begins to experience rapid growth. Rather than accommodating it, and instead of purchasing the remaining developable land, the community rezones it to low density. But most courts require some rationale for this rezoning, some public purpose to which the regulation must bear a reasonable relation. While courts are deferential, they do need some reason. Farmland preservation is, for many suburbs, the perfect rationale. It leaves the owner with some residual use, so it is not judged a taking, and it appears to be related to some arguable public purpose, preservation of agricultural capacity.

> The consequence of local control is that farmland preservation efforts are apt to cause leapfrog development.

The problem with adopting farmland preservation regulations by the near suburbs is that developers are driven to other jurisdictions. The jurisdictions to which the developers flee are not in the larger cities, where neighborhood conditions often make redevelopment problematical, nor to other close-in suburbs, where NIMBY (not in my backyard) groups are eager to preserve remaining open space. The developers head instead to rural communities still farther from the built-up parts of the metropolis.

Rural townships and small villages are often eager, at first, to get development. In rural jurisdictions, the owners of undeveloped land and their allies are dominant politically, and local people are often eager for the jobs development brings. This is not true in most suburbs, in which jobs are elsewhere, and homeowners, not owners of undeveloped land, dominate the political scene. Thus when Carver County, a suburb of Minneapolis, adopted farmland preservation regulations, the county planner described its success in these words: "We're creating problems for the counties that are just outside the metro area. They don't have this type of ordinance, and we're creating a leapfrog development effect into these counties" (quoted in Toner [1978, p. 14]).

At this point in my argument, people at a previous presentation have made an important objection. Their impression, and mine, too, is that suburbanites who leapfrog to the country are generally satisfied with their situation. They say they like the rural life and are willing to put up with the inconveniences of longer commuting and agricultural nuisances. By this way of thinking, rural sprawl is the result of buyer preferences, and it is hard for an economist to argue with that.

My problem with this argument is that we do not know how people would have behaved if they had been presented with the choice of suburban housing at prices that were not increased by excessive regulation. In my survey of scores of empirical studies (Fischel 1990), I found that suburban growth controls increased existing housing prices and reduced the value of undeveloped land. The reduction in the value of undeveloped parcels suggests that developers, at least, do not think that equally satisfactory alternative sites are easily available for suburban housing.

What, then, accounts for the impression that suburbanites who live in the country are happy with their situation? One may be self-selection. Of those people faced with buying more costly suburban housing, moving to the city, or moving to the country, we expect that people would make the choice that is most agreeable. The person who hated long-distance commuting and did not care much for farm fields would not move to the country, but would take her chances in the city or strap herself with a large mortgage in the suburbs.

The other reason may be that people rationalize their situation, and their situation may itself shape their tastes. To the extent that these are factors, the economic loss experienced by people who cannot afford a suburban house is mitigated. But we don't want to press the argument too far. It assumes people can happily adjust to any situation, which leads at best to a Panglossian outlook—this must be the best of all possible worlds. At worst, it rationalizes the actions of despots, since it assumes all preferences can be molded. In any case, it seems that preferences are not easily molded. The alacrity with which East European countries have jettisoned socialism when given the chance, despite forty years of attempts to mold a socialist consciousness, suggests that there are limits to the malleability of human preferences.

## The triage approach to farmland preservation.

The problem as I have outlined it has two different remedies. One is to raise the level of control by the states and the national government so that rural land use controls become as effective as they are in Canada and Japan and most other countries that rely on more centralized control. If such systems work, it is primarily because developers do not have any place other than the city or existing suburbs to go; all of the rural sites can be foreclosed.

I would not recommend such a system for the U.S. because of the hazard that the regulations are apt to go too far in foreclosing suburban development. There are, after all, lots of good reasons why much development should occur in the suburbs. With lower transportation costs, an increase in footloose work, and greater demand for low-density housing, cities should spread out. The danger of regional farmland preservation is that even the sites adjacent to existing development, where most people agree that development should occur regardless of farmland quality, would be declared off-limits.

This could be mitigated if farmland preservation were coupled with a regional program that forced close-in suburbs to rezone for higher densities. Oregon is attempting to do this, as described in a forthcoming book by Knaap and Nelson (1991). The results of this experiment are not clear, but I am doubtful that a government authority would be able to distinguish efficient from inefficient suburbanization of farmland. The extreme example is Japan, whose substantial impediments to developing agricultural land account in large part for its extraordinary housing costs. The regionally-adopted urban containment policies of Great Britain have also been criticized for raising housing costs (Chesire and Sheppard 1989).

My preferred remedy would be to give property rights back to landowners (Fischel 1985, p. 175). The origin of the problem is that the close-in suburbs use zoning regulations, justified by farmland preservation rationales, among others, to foreclose efficient suburban development. If they had to pay landowners for the burden this imposed upon them, they would do much less of it. Since landowner-developers have a strong incentive—the profit motive—to pay attention to the desires of potential residents, little inquiry would have to be made about what pattern was efficient and what was not. The only role for local government regulation would be to be sure that the developers paid for any increase in public service costs that would not be covered by additional local taxes generated by the development.

I will not dwell on either the larger-government or the property-rights remedy in this essay, since neither seems likely to occur soon. As I mentioned before, Americans like local government and stoutly resist most infringements on localism. A change in judicial attitudes that would facilitate landowner remedies under the regulatory taking doctrine is similarly remote. The U.S. Supreme Court in 1987 announced two cases that revived scholarly interest in regulatory takings, which would make communities pay for unreasonable downzonings (Michelman 1988). But there is little evidence that the federal or state courts are going to do much more than sporadically strike down errant land-use regulations under this doctrine. Even the courts of Pennsylvania and Illinois, which are widely regarded as being among the most friendly to developers, have upheld agricultural zoning schemes that imposed, without compensation, substantial losses on owners of developable agricultural land. (Wilson v. County of McHenry, 416 N.E.2d 426 [Illinois Appeals Court, 1981]; Cordorus Township v. Rodgers, 492 A.2d 73 (Pennsylvania Commonwealth Court, 1985]).

What I propose here instead of systematic policy reform is a shift in the focus of farmland preservation activities. Agricultural land preservation efforts might best follow a triage approach. Triage is a medical procedure invoked when there are too few resources to treat everyone, as sometimes happens during natural disasters, wartime, or epidemics. In triage, physicians evaluate a group of patients and put them in three groups: (1) Those who are too far gone to save, (2) those well enough to live without medical attention, and (3) those for whom doctoring is both necessary and potentially effective. Only the third group gets medical help.

Preservationists must allow that there are not enough resources to save all farmland.

To establish the application of the triage metaphor, both preservationists and development interests must concede something. Preservationist must allow that there are not enough resources to save all farmland. This is established by the difficulties that preservation advocates have in overcoming local resistance in the tens of thousands of local governments that are permitted to adopt land use controls. These difficulties are compounded by the residual influence of property-rights doctrines in the courts. Development interests must concede that some efforts to preserve farmland are worthwhile. This is established by the principle that some rural places may end up with development that reduces agglomeration economies. While I would argue that a deregulated land market would normally produce efficient patterns of development, developers do make mistakes, and their mistakes are hard to undo.

To apply the triage metaphor, then, is to divide farmland into three categories: (a) not savable, (b) savable but not in need of preservation, and (c) savable and necessary to preserve. Farmland within the boundaries of potential urban development is in the first category. Such farmland will most likely soon be converted; if it is preserved artificially, it will soon become economically nonviable and persist only as show farming. Farmland in truly remote areas (most nonmetropolitan counties) is in the second category because it seldom needs the attention of preservation efforts. Developers are usually not interested in remote tracts, though those that are ought to be encouraged to build in compact areas.

The third class is farmland within a metropolitan area but beyond reasonably expected contiguous development of existing urbanized areas. This land may be subjected to the aforementioned inefficient brand of leapfrog development. Some preservation efforts may be worthwhile both to prevent adventitious development from disrupting farming operations and to encourage development that is more contiguous to the city. It is necessary to repeat that simultaneous efforts must be made to keep the local governments in close-in areas from excluding normal suburban development. They should not be able to invoke farmland preservation as a rationale, even if they have good farmland and viable farms.

The medical triage metaphor may seem harsh, but it is worth recalling that its intent is maximum preservation of life. If doctors devote their attentions to those who will die anyway, some who might have lived will also die. The preservation of land for farming involves using scarce human and physical resources. Its proponents ought not to allow such resources to be wasted by protecting farmland in suburbs whose parochial, exclusionary interests harm both potential housing consumers and farmers in general.

To say that it is not in the public interest to preserve farmland within areas that are ripe for reasonably contiguous development requires some qualifications. "Reasonably" contiguous does not mean that all urban growth must occur immediately adjacent to existing development. Developers cannot force landowners, who are often farmers who want to work their land until retirement, to sell to them if the farmer's land is adjacent to earlier developments. Some temporary discontiguous development patterns are consistent with efficient and, ultimately, more compact urban developments. Furthermore, to require that all development must be on land adjacent to existing suburbs puts those landowners in an intolerably monopolistic position vis-a-vis developers. Such a monopoly might itself encourage excessive leapfrog development.

Regardless of what general rules are established for reserving land for urban development, farmland preservation arguments should not be allowed to prevent development on tracts that are immediately adjacent to already existing suburban subdivisions. Some court cases have upheld the downzoning to agricultural densities of undeveloped land bordered on three sides by subdivisions (MacDonald v. Yolo County [Cal.], 477 U.S. 340 [1985]; Wilson v. McHenry County, 416 N.E. 2d 426 [Ill. App. 1981]). The hysteria about "running out of farmland" of the early 1980s may well have contributed to judicial acceptance of these destructive and unjust policies. They are unjust because they treat one landowner, the owner of undeveloped land, differently from owners of adjacent land by denying him the right to build at densities that are similar to those of his neighbors.

It is important that even high-quality soils that are within the domain of potentially contiguous urban development should be permitted to be converted to urban uses. To allow soil quality to trump housing or other urban construction allows suburban communities to manipulate the farmland standards to continue their exclusionary ways. Permanent preservation of such plots removes from the market land that is often ideal for high-density urban development. Preservation of that land forces development elsewhere, usually at lower densities (because of topographic irregularity and lower price) and perhaps at the expense of other nearby farmers who must put up with conflicts with new residents.

Much farming within and near urbanizing areas will survive for a long time without any public preservation efforts. Studies have found that the best quality farmland is the last to be converted, other factors being held equal (Peterson 1978; Pyle 1985) and farmers can often make a good part-time income by selling roadside crops to suburban residents. On the other hand, to insist that owners of farmland near urban areas be permitted to conduct offensive agricultural operations is truly to turn the law of nuisance upside down. Right-to-farm laws are innocent in truly rural areas where farming is the norm, but such laws allow unconscionable manipulation of neighbors and developers when applied near urban areas. I have read of instances of a developer using right-to-farm laws to commit nuisances to penalize neighbors who objected to his commercial development proposals (Fischel 1985, p. 285).

No one should expect that the triage approach will dramatically change the behavior of state and local governments. Exclusionary zoning and inefficient but self-interested growth controls will continue. But withdrawing the agricultural basis of the farmland preservation argument will make it more difficult for partially developed suburban communities to deflect growth to their more truly rural neighbors. That is likely to be good for the health of both the rural and the urban economies, and probably make for a more pleasing environment as well.

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# Rural Land Management and the Welfare of Rural People

Pierre R. Crosson*

That on average the per capita welfare of rural people in the United States is less than that of urban people is widely recognized. Although there now is little difference between rural and urban people with respect to housing and health care (Duncan and Tickamyer, 1989), per capita income differences, after adjustment for rural-urban cost of living differences, are significant and stubbornly persistent (Brown and Warner, 1989). To be sure per capita income is not synonymous with per capita welfare, but the two probably are reasonably well correlated, both spatially and temporally.

The poverty rate—the percentage of the population with less than the official poverty level of income—was higher in rural than in urban areas throughout the 1970s and 1980s (Deavers, 1989). Brown and Warner (1989) note that in the late 1980s the poverty rate in eight highly rural states exceeded 17 percent, the national rate which triggered the war on poverty in 1964. Seven of the eight states were in Appalachia and the deep south, including the Mississippi Delta states of Arkansas, Louisiana and Mississippi. The eighth state was New Mexico, with a poverty rate of 20.7 percent (Brown and Warner, 1989).

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*Resources For the Future

The lower per capita income of rural people implies that the resources available to them are fewer, or less productive, or both, than the resources available to urban people. Resources here includes nature's endowment plus the knowledge of how to turn it to human purposes which is embodied in people, technology and institutions. In this paper I consider one resource in particular, land in agricultural and other rural uses, and ask what promise alternative patterns of rural land management have for improving the welfare of rural people. The answer I come to is, "Not much." That answer probably will surprise few who are knowledgeable about the limited income contribution of land in developed economies. However, the analysis which led to the conclusion may be of some general interest.

## Uses of rural land

Table 1 shows estimates of land use in the United States in 1987. The numbers for total land area, urban land and land in farms can be considered quite reliable, as can the number for private non-farm rural land. The estimate for total public land is equally reliable, but those for the various uses of this land are less so. They are, however, good enough for present purposes. (See note on sources.)

**Table 1.** Land Use in the United States, 1987 (millions acres)

| | | | | |
|---|---|---|---|---|
| Total land area, 48 states | | | | 1895 |
| Urban | | | | 56 |
| Rural | | | | 1839 |
| Private | | | 1270 | |
| Farm | | 964 | | |
| Cropland | 443 | | | |
| Pasture | 410 | | | |
| Forest | 80 | | | |
| Houselots, roads, wasteland | 31 | | | |
| Non-farm | | 306 | | |
| Public | | | 517 | |
| Federal | | 405 | | |
| Pasture and range | 144 | | | |
| Forest | 174 | | | |
| Miscellaneous | 87 | | | |
| State and local | | 112 | | |
| Pasture and range | 41 | | | |
| Forest | 34 | | | |
| Miscellaneous | 37 | | | |
| Indian | | 53 | | |

*Sources:* Total and urban area are from U.S. Department of Agriculture (1990). Farm data are from U.S. Department of Commerce (1990). Public and Indian land is from Daugherty (1991). The sources did not separate private and public ownership by urban and rural areas. In the table all urban land is assumed to be private and all farm, public and Indian land is assumed to be rural. This clearly is not correct, but the error cannot seriously distort the pattern of land use shown in the table because urban land is such a small proportion of the total. From data on total forest land in U.S. Department of Agriculture (1990) and on farm and public forest land shown in the table it can be inferred that most of private non-farm rural land is in forest.

It can be assumed that all the farmland is devoted to agricultural production. Most publicly-owned pasture and range is leased to farmers and ranchers, and no great error is made by assuming that all of this publicly-owned land also is in agriculture; some 75 million acres of the publicly-owned forest land also is grazed. By this reckoning the total land area devoted to agricultural production in 1987 was 1224 million acres (964 million farmland, 185 million publicly-owned pasture and range and 75 million publicly-owned forest land), or 67 percent of total rural land. This is a lower bound estimate because much if not most of the Indian land was in agriculture. If all of it was, then 69 percent of total rural land would be devoted to agricultural production.

Data compiled by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce (1990a) indicate that per capita personal income in the country in 1984/87 was $12,570 (1982$). Brown and Warner (1989) state that in 1987 non-metro per capita income was 72 percent of metro per capita income. Assuming that the rural-urban per capita income difference was also 72 percent (it may have been less since about 45 percent of the rural population lived in metropolitan areas, [U.S. Departments of Agriculture and Commerce, 1990]), and noting that in 1984/87 about 26 percent of the population was rural, one can calculate that the per capita personal income of rural people in 1984/87 was approximately $10,100. Since there were some 62.9 million people living in rural areas in those years (U.S. Department of Agriculture and Commerce, 1990), it follows that total personal rural income was about $635 billion (1982$). The BEA data (U.S. Department of Commerce, 1990a) indicate that farm personal income in 1984/87 was $37 billion or about 6 percent of total rural income.

Thus the two-thirds of rural land dedicated to agriculture contributed to about 6 percent of rural income. The contribution of farming, and indirectly of agricultural land, to rural income doubtless is higher when account is taken of rural economic activities directly and indirectly linked to agriculture, e.g. food processing and vending of farm inputs. Data are not available to estimate income generated in these linked activities. Research done at Resources For the Future suggests, however, that the amount of linked income is small. The research dealt with possible economic impacts of climate change on the economy of the region consisting of the four states of Missouri, Iowa, Nebraska and Kansas (MINK). The share of farm income in total income in MINK was 3 times the share in the country as a whole, i.e. relative to the rest of the nation MINK is specialized in agriculture. An input-output model for the region—IMPLAN, developed by the U.S. Forest Service (1989)—showed that farm production contributed 6.6 percent to total value added in the region in 1982. When account was taken of manufacturing activity directly linked to farm production, agriculture's contribution to regional value added was increased to 11.5 percent. The contributions from the agriculturally-linked service sector and wholesale and retail trade could not be estimated from IMPLAN, but they must also add something to agriculture's direct and indirect contribution to regional value added, raising it perhaps to 15 or 20 percent.

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> . . .the two-thirds of rural land dedicated to agriculture contributed to about 6 percent of rural income.

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However, this would overstate the contribution of agriculturally-linked activities to *rural* income because many, perhaps most, of the linked activities are in urban areas. For example, meat packing, the most important agriculturally related manufacturing activity in MINK, is concentrated in Omaha and Kansas City. Thus the MINK data strongly suggest that allowing for agriculturally-linked activities does not significantly change the fact that, across the country as a whole, agriculture, and indirectly agricultural land, contribute little to rural income.

Moreover, the areas where agriculture's contribution to rural income is relatively high are not generally the areas where rural poverty is most acute. Weber, Castle and Shriver (1988) show a figure indicating that the most farm-dependent counties—those in which 20 percent or more of labor and proprietors' income originates in agriculture—are heavily concentrated in the northern plains (Kansas north to the Canadian border). As noted above, the most acute rural poverty is concentrated in Appalachia and the deep south. Consistent with these facts, Deavers (1989) asserts that in the late 1980s farm poverty was a relatively small share of total rural poverty and few farming dependent countries were among the nation's poorest. Average per capita income in farming dependent countries was consistently above the average for all rural countries from the late 1960s to the late 1980s (Deavers, 1989).

The scant contribution of agriculture to rural income, and to alleviation of rural poverty, is not likely to change. Projections by the Bureau of Economic Analysis (U.S. Department of Commerce, 1990) show personal income from farming declining from 1.2 percent of total personal income in 1984/87 to 0.7 percent in 2030. A plausible scenario can be constructed in which the world food trade, and U.S. agricultural exports, fall precipitously because the developing countries continue to increase food production at the rate of the last 20 years. Should they do that, they would, as a group, be essentially self-sufficient in food by 2030. The consequent decline in world agricultural trade and U.S. exports likely would be even sharper if the Soviet Union and eastern Europe succeed in reforming their agricultures. In this scenario farm income likely would grow even less than in the BEA projections.

### Alternative uses of rural land

It is apparent that agricultural production and land used in agricultural production will contribute little to increasing the income of rural Americans. Are there alternative uses of agricultural land, and of the roughly one-third of rural land not in agriculture, which might hold more promise? Perhaps there are. Brown (1988) noted that population growth in service-based non-metropolitan counties, which he characterized as retirement inmigration counties, was greater than in the nation as a whole from 1980 to 1986. In fact this group of counties accounted for almost two-thirds of all non-metropolitan population growth in that period. DeWitt and Norris (1989) also found that countries which "swam against the tide" of slow rural employment growth in the 1980s were characterized by a relatively high proportion of retired people and people in recreational employment. Deavers (1989) asserted that the rural areas which grew strongly in the 1980s were those with high amenity values, attracting not only footloose industries and people as residents but also recreationists. And the President's initiative on rural economic development for the 1990s states that additional employment in rural areas must be off-farm "especially in industries such as tourism, retirement living and commercial recreation..." (Economic Policy Council Working Group on Rural Development, 1990, p. 4).

The experience of these relatively fast growing rural counties suggests that there are non-agricultural uses of rural land, particularly those involved in provision of amenity and recreational services, which hold some promise for faster growth of rural income. I first consider prospective demands for these services, then the role of rural land in expanding their supply. For brevity I refer to the services as environmental services.

### Demand for rural environmental services

Hunting, fishing and nonconsumptive uses of wildlife—observing and feeding animals—are activities which make extensive use of rural land (as well as water). Data collected by the U.S. Fish and Wildlife Service (1988) show that in 1985 140.1 million people 16 years old and older hunted, fished, and engaged in nonconsumptive uses of wildlife. There were 46.4 million fishermen, 16.7 million hunters and 134.7 million nonconsumptive users. (The numbers are not additive because many people engaged in more than one of the three activities.) These people spent about $56 billion on the activities, $31 billion on equipment, $21 billion on trip expenses and $3 billion for miscellaneous purposes, e.g. magazine subscriptions, membership dues and contributions, land leasing or purchase for access to wildlife, fees, licenses and so on (Fish and Wildlife Services, 1988). Most of the activity and much of the spending must have occurred in rural areas. The $21 billion of trip expenses probably is most significant for rural areas because much of that would have been spent on site. Much spending on equipment, however, likely occurred in the hometown of the recreationists, which is to say, in urban areas.

Fish and Wildlife Service (1988) does not provide data on pre-1985 nonconsumptive users of wildlife. However, the number of fishermen and hunters, the number of days they hunted and fished, and their spending on these activities increased substantially from 1965 to 1985, as Table 2 shows. Most of the increases, however, occurred between 1965 and 1980. From 1980 to 1985 the number of hunters actually declined and the number of hunting days was virtually unchanged. The percentage increases in number of fishermen and days fishing exceeded the growth of population, reflecting continued per capita growth in these activities.

**Table 2.** Fishing and Hunting in the United States, and Related Data

|  | 1965 | 1980 | % change '65 - '80 | 1985 | % change '80 - '85 |
|---|---|---|---|---|---|
|  |  |  | *(millions)* |  |  |
| Fishermen (12 yrs & older) | 28.3 | 41.9 | 48.1 | 45.3 | 8.1 |
| Hunters (12 yrs & older) | 13.6 | 16.8 | 23.5 | 16.3 | -3.0 |
| Days fishing | 522.8 | 952.4 | 82.2 | 1065.0 | 11.8 |
| Days hunting | 185.8 | 348.5 | 87.6 | 350.4 | 0.5 |
| Expenditures |  |  |  |  |  |
| Fishermen | 2925.3 | 17983.2 | 514.7 | 28,585.7 | 60.0 |
| Hunters | 1121.1 | 8313.6 | 641.6 | 10,256.7 | 23.4 |
| Total | 4046.4 | 28,296.8 | 599.3 | 38,842.4 | 37.3 |
| Total population | 194.3 | 227.8 | 17.2 | 239.3 | 5.0 |
| Total disposable income (billions$) | $486.8 | $1918.0 | 294.0 | $2838.7 | 48.0 |
| Per capita disposable income | $2505 | $8420 | 226.1 | $11863 | 40.9 |
| Per capita spending | $21 | $124 | 491.5 | $162 | 30.9 |

*Sources:* Fishing and hunting data from Fish and Wildlife Service (1988). Population and income data from Council of Economic Advisors (1991).

Note that in percentage terms per capita spending for hunting and fishing increased more than twice as much as per capita income from 1965 to 1980, indicating a high income elasticity of demand for hunting and fishing over that period as a whole. From 1980 to 1985, however, per capita spending on the two activities increased only about 75 percent as much as per capita income, indicating inelastic demand for the activities. The reasons for the switch from income elastic to income inelastic demand are not obvious, and I have not investigated them. The 1980-85 experience, however, suggests a much less exuberant future demand for fishing and hunting than the 1965-80 experience.

Hunting, fishing and nonconsumptive uses of wildlife of course are not the only recreational or amenity uses of rural land. For example, it is widely accepted that the scenic amenities of rural landscapes have high value for many people. The tradition of a Sunday drive through the countryside is not dead. It seems unlikely, however, that this use of rural land contributes much income to rural people. Almost by definition trips taken to enjoy rural landscapes are short—probably a day or less—and not likely to generate much spending on the kinds of services rural people provide.

Trips to national and state parks and other recreational sites also represent an important use of rural land, and related water resources. In 1987 there were 589.3 million visitor days spent at seven federal government recreational sites (Cordell et al., 1990). A visitor day is total visitor hours at a site divided by 12 to reflect an assumed 12 hour day of recreational activity. Forty percent of the visitor days were at facilities of the Forest Service, 25 percent were at Corps of Engineers reservoirs and related land, 19 percent were at national parks and the rest were at Department of Interior and Tennessee Valley Authority sites. Data on spending per visitor day are not available in Cordell et al. (1990) or in the other Forest Service sources consulted. However, if spending were as little as $5 per day, the total would be close to $30 billion.

Visitor days at the sites in 1987 were up only 4 percent relative to 1977 but by 11 percent relative to 1980. Visitor days at Forest Service facilities and national parks increased from 1977 to 1987, but days declined at facilities of the other 5 agencies.

Data showing visitor days to state recreational facilities are not available, but 90 percent of the visits were for one day or less, i.e. only 10 percent were overnight visits (Cordell et al., 1990). Spending data for visits to state facilities are not available.

The work by Cordell et al. (1990) was part of the 1989 Resources Planning Act assessment undertaken periodically by the U.S. Forest Service as mandated by the Congress. Cordell et al. (1990, p. 44) grouped recreational activities into those which are land-based, water-based and snow- and ice-based. The land-based category had 22 activities ranging from the most popular, driving for pleasure (422 million trips away from home in 1987), to the least popular, visiting museums or information centers (9.7 million 1987 trips). After driving for pleasure the most important activities were sightseeing (293 million trips), walking for pleasure (267 million trips), picnicking (262 million trips) and bicycle riding (115 million trips). The five most important activities accounted for 59 percent of total 1987 recreational trips from home in 1987. Cordell et al. (1990, p. 43) assert that most of those trips were "primarily destined for rural forest, range and water areas . . ."

Cordell et al. (1990, p. 44) show projections of each of the 22 land-based activities as well as for 7 water-based and 2 snow- and ice-based activities. The projections are from 1987 to 2000, 2010, 2020, 2030 and 2040. For land-based activities the projections show percentage increases from 1987 to 2000 varying from 5 percent (nature study) to 34 percent (backpacking). For the five most important activities in 1987 the increases to 2000 are 15 percent (driving for pleasure), 18 percent (sightseeing), 16 percent (walking for pleasure), 8 percent (picnicking) and 25 percent (bicycle riding). The increase for picnicking is less than the projected increase in U.S. population from 1987 to 2000 (United Nations, 1989). The increases for the other four activities exceed the population increase projected by the U.N. by 58 to 163 percent, indicating continued capita growth in these activities.

Cordell et al. (1990, p. 43) state that their projections are based on "the major factors appearing to shape future recreation demand" which are the future growth of disposable personal income, its affect on the percentage of the population earning real income in excess of $30,000, the percentage of the population between 18 and 32 years of age, population growth, and the availability of a variety of recreational opportunities.

Although the projections by Cordell et al. to 2000 do not show strikingly robust growth in outdoor recreation demand—the weighted average increase for the five most important activities is 15 percent; for the 22 categories as a whole the increase is only 16 or 17 percent—they do imply continued increases in demand for services of rural land (and complementary resources). The projections include observation and photography of wildlife (a nonconsumptive use projected to increase 16 percent from 1987 to 2000), but not hunting and fishing. If the 1980 to 1985 relationship between per capita income and per capita spending on these activities holds (see Table 2), and if per capita income continues to increase at the rate of the last decade or so (1.8 percent annually in constant dollars, 1970-1990, Council of Economic Advisors, 1991), then the demand for hunting and fishing would increase more, perhaps twice as much as the increases in other outdoor recreational activities projected by Cordell et al. Even so, if the Cordell et al. projections are reasonably on target, demand for outdoor recreation would not likely increase by more than some 20 to 25 percent from 1987 to 2000. This is not the performance of a strong growth industry. Indeed, it probably would not match the growth of the economy as a whole.

**Supply of rural environmental services.**

The issue considered here is the role of agricultural and other rural land in augmenting the supply of recreational and other environmental services of rural areas.

Most soil erosion in the United States occurs on agricultural land, with cropland the most important single source.

Most soil erosion in the United States occurs on agricultural land, with cropland the most important single source. And sediment is a major pollutant of surface water. With reference to the late 1970s and early 1980s Clark et al. (1985) estimated that sediment damages to surface water quality cost the nation $3-13 billion annually, with a "best guess" estimate of $6 billion. Loss of water based recreational values was a major cost element. In a contingent valuation study Carson and Mitchell (1985) estimated that the American public would be willing to pay $19-$30 billion annually to raise all of the nation's surface water to swimable quality. Although Carson and Mitchell did not consider how this might be done, measures to reduce deliveries of sediment to streams, lakes and reservoirs inevitably would be an important part of any such undertaking.

Improvements in management of agricultural and other rural land to reduce delivery of sediment to surface waters thus should increase the supply of water-based recreational and other environmental services of rural areas. However, there are important technical and institutional obstacles to achieving significant reduction of sediment deliveries. Numerous studies have shown that enormous quantities of sediment are stored in watersheds and river basins throughout the United States. Trimble, for example, (1975) showed that in the piedmont region of the south of all the soil eroded in the region from colonial times to the 1970s, only about 5 percent had been delivered below the fall line of the region's rivers. Trimble (1981) found a comparable situation in the Coon Creek watershed of Wisconsin. Meade and Parker (1985) estimated that sediment delivered each year to the two oceans and the Gulf of Mexico is about 10 percent of annual soil erosion. A small part of the remaining 90 percent is delivered to lakes and reservoirs, but most of it is stored in gullies, in forests and grasslands, along fences and elsewhere on the landscape.

Across the nation as a whole success in reducing erosion on farmers' fields would almost surely result in a far less than equal reduction in deliveries of sediment to surface waters, at least for many years. The reason is that water in runoff and in streams has a certain capacity to transport sediment, depending on water velocity and soil type. If erosion control reduced sediment in runoff from farmers' fields, the water will entrain sediment stored elsewhere on the landscape and deliver it to rivers. If sediment delivered to rivers is reduced, the river will begin to scour its walls and bed such that sediment delivered to the mouth of the river might be little less than before the erosion control measures were introduced.

The fact of sediment storage, combined with the sediment transport characteristics of moving water, results in large scale spatial and temporal discontinuities between the occurrence of erosion on the land and the delivery of sediment downstream to places where it damages recreational and other environmental values of surface water. Consequently measures to reduce erosion on agricultural land may contribute little to increasing the supply of these services.

Crosson, (forthcoming) recognizing this technical characteristic of the erosion-sediment delivery relationship, has argued that policies to reduce sediment damage should focus on reducing deliveries of sediment at the places where damage occurs, not on reducing erosion on farmers' fields upstream. There are important institutional obstacles to adoption of this policy, however. The U.S. Department of Agriculture has always seen its conservation role in land management as one of providing technical advice and financial assistance to farmers wishing to reduce erosion on their land. Although the Department shows signs of recognizing intellectually that this approach is not appropriate for reducing sediment damage, adoption of a policy aimed at downstream sediment control would require a wrenching change in perspective, which so far has not occurred.

Another obstacle is that the institutions needed to formulate and implement downstream sediment control are weak or nonexistent. Reflecting the focus on erosion control, the rural institutional structure for soil management—the local soil conservation districts, of which there is approximately one for each county in the country—is designed to deliver services at the farm level. But downstream sediment control will require institutions operating at least at a watershed level, and in some areas probably at a river basin level. Such institutions will not be put in place until the sediment management problem is seen as distinct from the erosion management problem. Until that happens, sediment damage will continue to impede expansion of the supply of water-based recreation and other environmental services in rural areas.

Whatever success may be achieved in expanding the supply of these services, the contribution to alleviating rural poverty likely will be less than proportional. The reason is that there seems to be a quite imperfect match between the areas where the supply of rural environmental services might most readily be increased and the areas where rural poverty is most concentrated. Ribaudo (1986), basing his work on the study of the cost of sediment damage by Clark et al. (1985), estimated annual sediment damage for the country as a whole at $7 billion in the mid-1980s. However, the regions of greatest damage, and therefore those likely to have the greatest benefit from reducing damage were, in descending order, the Pacific coast, the Northeast, the Cornbelt and the Mountain states. Among them these four regions accounted for $4.1 billion of the estimated $7 billion in damage. The areas where rural poverty is most strongly concentrated, the Southeast, Appalachia and the Mississippi Delta, accounted for $1.3 billion of the damages. Ribaudo's results suggest that a policy to improve rural incomes by reducing sediment damage likely would not give top priority to the areas of greatest rural poverty; unless each dollar of income increase resulting from the policy were given much more weight in high poverty areas than in others.

Increasing the amount of rural land in parks and protected wildlife areas should help to increase the supply of rural environmental services. But there appears to be a mismatch here also between the areas where rural poverty is most concentrated and those where public land for parks and wildlife protection is greatest. In 1987 some 84 million acres of rural land were in federal and state owned parks and wildlife regions (U.S. Department of Agriculture, 1990). Sixty-eight million of these acres—81 percent—were in the Pacific and Mountain states, the Northeast and the Lake states (Michigan, Minnesota and Wisconsin). The Southeast, Appalachia and the Mississippi Delta had 10.2 million acres of this land, or 12 percent.

> ". . .reduction in the economic cost of geographic distance holds the prospect of improving economic prosperity of less densely populated areas."

Castle (1987) considers the demand for outdoor recreation and scenic amenities to reflect the value people put on space. He argues further that technological and institutional changes which reduce the cost of travel in effect increase the "supply" of space. From this he concludes with respect to rural America that, "Other things being equal, a reduction in the economic cost of geographic distance holds the prospect of improving the economic prosperity of the less densely populated areas" (Castle, 1987, p.3).

There is much empirical support for Castle's argument, e.g. the considerable literature on the travel cost method for estimating the demand for outdoor recreation. The relevant question here is how much potential there is for additional reductions in the economic cost of distance to increase the supply of rural environmental services. The interstate highway system must have made a major contribution to increasing the supply of these services, but that system now is built. The much touted "information revolution" introduced by advances in computer technology and FAX machines should contribute to reducing the costs of distance; but so far as I know the effects of these advances on the supply of rural environmental services has not been investigated. I suspect that this could be a fruitful area for research on the economics of rural areas.

The discussion suggests a potential role for public policies to increase the supply of rural environmental services. I do not here consider policy issues in detail, but will make two points. One is suggested by Popper's article on Rural Land Use Policies and Rural Poverty (Popper, 1984). Popper argues that policies for rural land use are derivative from urban land use policies and that in both cases the effect of the policies, whether by intent or not, is to protect the interests of urban and rural elites, not the poor. Popper notes that in the 1970s many states in the Northeast adopted land control measures to protect a variety of rural environmental values, such as those of wetlands and scenic amenities. Popper (1984, p. 329) asserts that, "The rural poor have been consistently indifferent and are opposed to these measures, for they receive little benefit from them," and presents some impressive, although anecdotal, support for the assertion.

I do not consider Popper's argument to make a general case against rural land use policies to increase the supply of rural environmental services; nor do I believe that he considers it as such. The argument does make the point, however, that rural land use policies likely will affect the distribution of income between the rural affluent and poor. These distributional consequences must be taken into account if the policies are to aid the rural poor.

The other point about policies that I want to make concerns the powerful pro-agriculture bias built into the U.S. Department of Agriculture and the land grant universities. Bonnen (1990) argues that at least until the 1930s policies to support agriculture would legitimately be considered to benefit farmers and the rural population generally. But with the declining importance of farm income in total rural income, agricultural policies became increasingly less relevant to rural welfare, and today are hardly relevant at all except in the handful of counties still dependent primarily on agriculture. And, as noted above, these are not the counties where the rural poor are concentrated.

The pro-agriculture bias in ostensibly rural policies is apparent not only in the massive spending on commodity support programs but also in the agenda of public agricultural research institutions. This expression of the bias is especially important because much new research will be needed to provide the technical and institutional innovations for increasing the supply of rural environmental services. But such investigations get low priority in agricultural research institutions. The institutions always have been and still are designed to protect farm commodity production. Researchers and administrators in the institutions achieve distinction and advancement by their contributions to increased productivity in commodity output. By comparison research to increase the productivity of environmental resources, say wildlife habitat or institutions permitting capture of the economic values of scenic rural landscapes, are lightly rewarded.

> The bias against non-agricultural rural resources in federal government policies is a powerful obstacle . . .

The bias against non-agricultural rural resources in federal government policies is a powerful obstacle to increasing the supply of environmental services in rural areas. The bias will not be overcome until it is generally recognized that the interests of farmers do not necessarily coincide with the rest of the rural population. How to achieve this recognition could well be an important theme for rural social science research.

## Conclusion

Prospective increases in demand or rural environmental services hold some promise for increasing the income of rural people. Many of the services are land based, and water based recreational services are affected by the management of agricultural and other rural land. It follows that patterns of land management which positively affect the supply of rural environmental services would contribute to increasing rural income. The promise is not abundant, however. The projections of Cordell et al. (1990) suggest that demand for the services will not increase much, if any, faster than national income. And there are strong technical and institutional obstacles to significantly increasing the supply of the services. The combination of demand and supply conditions for the services indicates that if the rural-urban income gap is to be narrowed, and rural poverty reduced, we must look to non-land based sectors of the rural economy.

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# Modernizing the Land-Grant University

Lamartine F. Hood*

Land-grant universities were established in the 1860s to be socially involved, problem-solving institutions. With the advent of federal funding for agricultural experiment stations in 1887 and cooperative extension in 1914, these institutions established a community-based educational network to share their resources and expertise with local residents. The resulting land-grant university system was a unique, noble undertaking, one that has served America well for more than a century. Today, that system is at a crossroads. The direction we choose to travel will determine how far we can go. We can travel along the same road we always have, though that path may be much shorter than we'd like. Or we can choose a new direction, one we can travel into the 21st century and beyond. The choice is ours.

In broad terms, our mission is to make the latest and best information available to citizens when and where they need it. Traditionally, researchers in land-grant agricultural colleges developed new techniques in response to farmers' needs. These techniques then were disseminated through cooperative extension and resident education. But land-grant universities were designed to meet the needs of the rural, largely farm-based population that existed in the 1800s. More than a century later, that traditional audience has shrunk. In Pennsylvania, the 10 million people who reside in urban or metropolitan areas contribute significantly to the state's economic well-being and the viability of agricultural enterprises. With 85 percent of our population living in towns and cities, Pennsylvania's land-grant university, like most, needs to re-examine its continuing relevance to all citizens. Are we living up to the promises made when we were founded? Are we really serving the needs of the broad population, or are we focused on a minority, however vital that minority may be?

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The challenge before us is to modernize the land-grant university system so that our programs remain relevant to all citizens well into the future. We can accept this challenge or we can ignore it. We can fight to stand in the same plot of ground we have always occupied, or we can move forward, expanding the territory we cover.

The land-grant university system, successful as it is, needs to keep pace with the needs of our time. It's a bit like the old Model T automobile, which was first produced in the early years of this century—about the same time cooperative extension was getting its start. The Model T was a state-of-the-art vehicle for its time, and it remains a beloved classic car today. It's highly prized by collectors. But would you really want to drive one on a modern superhighway? If the Ford Motor Company continued to market the Model T to today's driver, they'd be out of business, passed up by the competition.

To stay in business, land-grant universities must learn to serve an increasingly urban clientele just as well as they have served rural groups. Our role in cities and towns should be the same as our role in rural areas—helping people solve their local problems. Colleges of agriculture are well-positioned to build on existing strengths and develop new or expanded research and education programs that address the critical needs of urban residents. Through cooperative extension, we already have a local network established to make the resources of the university available to all citizens.

Within our traditional land-grant mission, we can apply to urban settings programs that already work well in rural areas. Many programs that support traditional agriculture are relevant to people everywhere. These include horticulture, pesticide use and safety, environmental protection, nutrition and food safety, youth development, and family social and economic well-being. We also have the expertise to apply the environmental sciences to urban problems. Penn State's Municipal Tree Restoration Program, for instance, applies the talents and knowledge of our forest resources faculty to help community leaders select the best trees for urban environments. By planting trees that can survive and even thrive in these areas, this program helps beautify our towns and cities and make them more livable. It is a notable example of how a traditional agricultural discipline—in this case, forestry—can make a difference in urban areas.

But we also must identify and address nontraditional issues critical to urban residents. Many of these issues also will be relevant to rural dwellers. Informal education programs for the poor, for example, could address housing and utility needs as well as home maintenance. Programs for other residents might emphasize lawn care, home landscaping, and public policy. Families need educational programs that help them cope with stressful situations, such as dependent elderly parents or loss of income. People everywhere need information on leadership, environmental resource management, and home safety and health. There also are many opportunities to reach out to urban youth. Urban 4-H clubs can bring together groups of young people who share an interest in a particular topic—growing plants, career planning, leadership, or parenting. Programs such as Learn to Earn, a crash course in job skills, can help promote youth development and boost self-esteem. Other programs can help raise awareness of issues such as teen pregnancy and drug and alcohol abuse.

In Pennsylvania, Philadelphia County provides a working, successful example of how vital and important cooperative extension can be in the lives of urban people. Philadelphia already has one of the largest 4-H programs in the country, with more than 17,000 members. The extension staff there works in cooperation with the Philadelphia Housing Authority to promote community leadership in housing projects. By developing effective programs to address urban problems and networking with local government and social service agencies to find effective solutions, Penn State Cooperative Extension is becoming known in urban areas as an action agency—one that gets things done and also provides leadership in working with other groups and agencies. As extension programs reach more and more Pennsylvania citizens, the number of staff in our urban extension offices is increasing. Philadelphia County now has the largest county extension staff in our state, with more than 40 employees.

Extension's effectiveness in urban areas has not gone unnoticed by legislators and other policymakers. Broader recognition of extension's importance has been reflected in increased financial support for extension by urban counties, as well as affirmative voting by legislators on extension-oriented legislation. In Pennsylvania, the stagnant federal contribution to cooperative extension's budget has been more than offset by growing state and local support. During the past five years, the share of the extension budget provided by state and local governments in Pennsylvania has increased steadily, while the share provided by the federal government has dropped from 36 to 28 percent.

Serving urban clients also helps resident education efforts. For several years, Penn State's College of Agriculture has maintained close ties with the Walter Biddle Saul High School of Agricultural Science, a magnet school that attracts Philadelphia youth interested in the agricultural sciences. Educational programs in urban schools can expose more young people to the wide range of opportunities and offerings in colleges of agriculture, and ultimately increase the diversity of our students, faculty, and staff. College-bound students in urban areas come to realize that contemporary colleges of agriculture offer interesting and relevant undergraduate programs. That Penn State's urban outreach is paying off is evidenced by the fact that enrollment in the College of Agriculture is at its highest level since 1987. A 1990 survey of the College's incoming freshmen at our University Park campus found that 85 percent of our new students came from urban and non-farm backgrounds.

Cooperative extension also can link the entire university to local governments in urban as well as rural areas. Extension has a history of working with local government officials and citizens to identify local needs through public forums and more formal assessments. Our experience with and access to local government and community leaders uniquely qualify cooperative extension to help faculty in all of our university's colleges conduct programs, research, and continuing education at the local level. As a result, extension plays a critical role in many university efforts to determine program priorities from the perspective of community officials and the general public. In this way, cooperative extension helps the total university obtain the knowledge necessary for fuller participation in the problems facing society.

Some programs even facilitate university outreach, education, and research efforts at once. For example, Penn State and Bell of Pennsylvania have co-sponsored the Community and Economic Development Associates Program. This effort, managed by faculty in our department of agricultural economics and rural sociology, has sent recent university graduates to selected communities for one year to help carry out locally-designed development projects. These communities range from rural Clearfield in central Pennsylvania, to very urban communities such as Braddock and McKeesport near Pittsburgh. The benefits of this program are threefold. First, the communities served receive valuable, professional community development assistance that they could not otherwise afford. Because the projects were identified and designed by community leaders, their relevance was guaranteed. Second, the recent graduates—who came from academic units ranging from rural sociology to communications—were able to play a vital role in projects that really made a difference in the communities they served. Third, university faculty and staff gathered valuable information about local needs and concerns from the communities themselves. The program's effectiveness is confirmed by the fact that many of the participating communities hired their development associates permanently after the initial year-long project concluded.

But as we expand our urban activities, we can't lose sight of our traditional audience. Diversifying our offerings to include urban residents does not mean we must neglect our rural clientele—land-grant universities and colleges of agriculture should continue to serve the needs of rural people as they always have. But remember, the problems of America's rural citizens also are changing. The needs of the rural population and the problems of urban centers are becoming more closely linked. Substance abuse, for instance, often is depicted as an urban issue, but it also threatens our rural communities. Many programs that seem to be tailored for urban areas—latchkey kid safety and educational programs for child-care givers, for instance—are equally relevant to rural areas, especially as off-farm employment becomes more and more common. Service to both rural and urban people will continue to enhance state and local funding for extension and support for the land-grant university.

As we consider expanding the scope of our outreach, it's important to bear in mind that an extension program is only as strong as its research base—effective programs are grounded firmly in research and other creative work. The genius of the land-grant model is this linking together of extension and research. That link must be maintained and broadened if past successes are to continue. Research and education must be interconnected, interdependent, and integrated across the university—and even among universities.

When agriculture and a rural population dominated the nation, the research base for extension education programs generally could be found within colleges of agriculture. However, these colleges do not have the full range of expertise necessary to deal with many of the new issues. Educational programs in community and human capital development, family social and economic well-being, water quality, human nutrition, food safety, and natural resource management require expertise in addition to the faculty of agricultural colleges. Fortunately, valuable research in these areas is conducted in other colleges, such as education, liberal arts, engineering, medicine, science, and health and human development. That's why extension staff must have access to the research output of the total university. The challenge is to effectively tap into it.

Because the issues facing Pennsylvania and the nation cross many boundaries, Penn State's College of Agriculture has fostered interdisciplinary research teams that address difficult problems ranging from avian influenza to food safety. We earmark College of Agriculture research funds to support the collaboration of scientists in our college with those in other colleges of the university. The College of Agriculture also formed 12 issues committees in May 1990. These committees, which cover issues from family well-being to water quality, bring together extension and research staff, pooling expertise in each subject area. They serve as internal "think tanks" for the College, and help us to improve our communication with each other and with our clients. In addition, the head of Penn State's Department of Nutrition, who is a member of the College of Health and Human Development, serves as one of the assistant directors of the Pennsylvania Agricultural Experiment Station.

But it's not enough to integrate and coordinate research and extension efforts within a given university—we also must connect and collaborate among universities. This is particularly important on the regional level, where one university has expertise in one aspect of a given issue and its neighboring institution has the best information and research on another aspect. By coordinating and streamlining research and extension efforts, two or more universities can improve the lives of citizens not just in their native states, but in their entire geographic region.

Penn State manages and houses a very successful collaborative effort, the PENpages computer database, an electronic reference library of information on a wide range of topics. PENpages provides briefs, articles, bibliographies, media material, census data, publications, and program ideas on a computer bulletin board. Contributors to this database include several Penn State colleges, the International Fabricare Institute, and Rutgers, the State University of New Jersey. Bureaus of the Pennsylvania Department of Agriculture contribute information about markets, state and national agricultural statistics, and public policy and law. The National Database for Family and Economics Well-Being, which brings together family living information from experts across the country, also can be found on PENpages. This service is available 24 hours a day, has no user fee, provides immediate program information, and includes quick updates. The database has responded to more than 25,000 individual inquiries since its beginning.

The integration of research and extension also is enhanced by giving a defined research responsibility to faculty with extension responsibilities. The research is typically focused on applied work related to the individual's extension program. These dual appointments help integrate statewide extension programs and personnel into on-campus academic units. The nature of county extension personnel also is changing. Extension staff are becoming more specialized and discipline-oriented. Many have master's and doctoral degrees, and thus research experience. They are quite able—and eager—to be active players on research teams and indeed often seek research roles. Although county staff may not have formal research appointments, they contribute a unique perspective of research needs and can be vital collaborators in conducting field research and developing demonstrations for clientele.

To help provide adequate staff for increasingly complex, research-based extension programs, multi-county extension staff now supplement those located in single counties. Multi-county agents have a more specialized disciplinary perspective and broader geographic responsibility than traditional extension staff. They function as regional subject-matter specialists in areas such as agricultural engineering, animal health, community and leadership development, water quality, and home business management.

As we design new educational programs for a broader range of citizens, it's important to use new technologies that can help us reach that broader audience more efficiently. Whether we like it or not, the days of extension staff travelling from farm to farm to deliver educational programs one-on-one are waning. But modern technology, from home computers to interactive video to satellites, provides a variety of innovative delivery systems for reaching more people from different cultural, social, and economic backgrounds. These systems can strengthen significantly our ability to reach urban and metropolitan as well as rural audiences. Statewide or regional toll-free information and education telephone services could handle a large proportion of service calls in home horticulture and urban entomology, for example. Audio-text tapes could be made available on a call-in basis through county extension offices on special telephone lines. Learn-at-home and cable television programs also have great potential for reaching more people. Audio tapes, video cassettes, and computer resources such as expert systems and the PENpages database could be made available through public libraries and schools as well as county extension offices.

I anticipate a future in which the land-grant university continues to fulfill its promise of helping citizens—all citizens—solve problems and better understand the issues that affect their lives. Colleges of agriculture and cooperative extension should lead that effort by reaching out to the broad population for the entire university.

But there are potential downsides to broadening our contacts, our clients, and the range of issues we address. One concern involves financing. When land-grant budgets are already tight, where will we find the funds for these new projects and new directions? The political influence of our traditional agricultural audience is declining, and it is difficult to ask them to support applying resources from ever-diminishing budgets to new programs for nontraditional audiences. But to maintain, let alone increase, our current levels of funding, we need to increase our relevance to citizens from all walks of life. The political foundations must be broadened to generate financial support from sources other than our traditional client groups. To accomplish that task requires the active support of our rural foundations. These groups must realize that the long-term financial viability of the system that has served them well for nearly 130 years requires a more diverse political base.

There also is concern that as we reach out to other colleges, social service agencies, and collaborators we will, in effect, give our system away. While dairy farmers, poultry producers, and nursery owners are concerned about broad social problems, they don't want to lose the relevant production, processing, marketing, and research programs they need. But the farming community is sophisticated enough to realize that, as both citizens and businesspeople, they are major stakeholders in the success of extension in helping individuals and communities deal with problems of economic growth, the provision of adequate social services, and the tragedies of substance abuse, teen pregnancy, and failed education among youth. The key to broadening our support and our funding—for both traditional and new programs—is to demonstrate relevance at the local level by cooperative extension. Local relevance generates grass roots support that is reflected in public policy positions that are pro-extension. Without that broader client base, support for the programs that serve our traditional, but diminishing, farm and rural audience will surely wither and fade. And that would be a true tragedy.

Today we are gathered to discuss and consider the path we're going to travel into the future. Starting here and now, we have the chance to re-orient, re-vitalize, and modernize the land-grant system. It's a challenge we must accept; to do the contrary could be fatal for our land-grant system.

## For more information:

*College of Agriculture Programming in Urban and Metropolitan Areas.* Urban Studies Task Force. December 1989. The Pennsylvania State University, College of Agriculture, University Park, PA.

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"Cooperative Extension's Role in Shaping the Future of Land--Grant Universities," by Lamartine Hood and Wayne Schutjer. *Choices*, Second Quarter 1990.

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"Public Service, Private Gain," by Eston C. Martz. *Penn State Agriculture*, Fall 1990.

"New Faces, New Places," by Brian C. Avery. *Penn State Agriculture*, Spring/Summer 1989.

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# Challenges to Cooperative Extension in Urbanized Settings

*Richard E. Fowler*[*]

I'd like to talk with you today about Extension's role in growth management in urbanizing rural areas. Not all rural areas need development. Many have more development than they can handle; their need is growth management rather than stimulants. This is true of all rural areas in Delaware and throughout much of the nation within 50 or even 100 miles from metropolitan areas.

Delaware's population is growing more than twice as fast as the U.S. growth rate. A 15% increase in Delaware's population is expected in the 1990s, a rate faster than in any of our neighboring states. Sussex county, our most rural county, is exhibiting the most rapid growth and is now Delware's second most populous county.

The following statement comes from the foreword to the final report of the governor's select panel on the future of Delaware Agriculture, completed in December 1988:

> Delaware ranks among the top eight states in percentage of land area used as cropland. Dela-

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[*] The University of Delaware

> ware also ranks among the top six states in percentage of land area that is urban. No other state is simultaneously so agricultural yet so urban. In other words nowhere else in the United States is there such potential for conflict between farming and urban expansion. This is the challenge facing the Delaware agricultural industry. It encompasses many issues.

One of the major challenges facing agriculture is in the area of the environmental concerns, and it is largely the issue of urban versus rural in the environmental context. These concerns arise from the urban competition for air, land, and water. Conflicts are emerging between the rural and urban sectors over land use and the issues having to do with agricultural practices and the impacts, real or perceived, that these practices have on adjacent urban areas.

It seems to me that farmers are environmentalists but not with the same perspective as the urban community. Ann Fisher in an excellent paper on "Communicating Envirnomental Risks from Agriculture" at a Pennsylvania State University conference in March observed:

> Unless farmers find their own wells to be contaminated, they may not view degradation of groundwater quality as a problem for themselves or others . . . farmers generally have not viewed their agricultural practices as threatening to the environment . . . farmers' perceptions (and perceptions of others in the agricultural community) of the environmental risks from agriculture differ from experts' estimates of those risks and from citizen groups' perceptions.

Katherine Reichelderfer, in the National Center for Food and Agricultural Policy at Resources For the Future, recently wrote an article titled "The Expanding Role of Environmental Interests in Agricultural Policy." She carefully examines the special treatment whereby agriculture has been generally excused from the degree of environmental regulation imposed on other industries. Then she examines, equally carefully, the reasons why greater environmental regulation of agriculture is likely not only in the United States but elsewhere. She discusses at length the broad political and economic trends that are likely to change future policy approaches to environmental regulation in American agriculture. She concludes with these words:

> The choice that farmers, agribusiness, and policymakers face is whether to increase environmental regulation of agriculture through a command-and-control approach or a market-based one. Experience in other industries suggests that the more efficient market-based approach has greater potential for creating a climate under which production that is sensitive to environmental protection is also good for agricultural business.

Dr. Reichelderfer's article is in the winter 1991 issue of *Resources,* the magazine published by Resources For the Future. Her article is thought-provoking, and I commend it to your reading.

Unless voluntary best-management practices by farmers prove effective in reducing agricultural pollutants, the increase in regulation that Dr. Reichelderfer forsees probably will come soon. The conflicts that may arise out of the rejection of best-management practices as voluntary measures to reduce agricultural impacts on the environment could have profound effects on the economic environment in which the producer operates. As Dr. Reichelderfer makes clear, this environment is global as well as national and regional.

Colleges of agriculture walk a tightrope here. Extension educational programs, based mainly on USDA and Agricultural Experiment Station research, are the barrier protecting farmers from heavier regulation. If research-based educational assistance on voluntary best-management practices was not available, regulators would have no choice but to come down harder on farmers.

Yet when extension tries to aggressively assist farmers on implementing best-management practices, we run into criticism that we are too cozy with an environmental agency that is perceived to be overly zealous. I personally have been asked by farmers: "Whose side are you on?" I suppose the environmental agency feels just as strongly that extension is on the farmer's side.

Delaware Cooperative Extension strives to work appropriately and responsibly in education on public issues. We try to adhere to three principles:

- Be factual: we try to provide the most accurate and complete information we can find through exhaustive research. We try to set out the pros and cons on all sides.
- Be analytical: being analytical begins with clearly defining the problem. What precisely is the problem? Whose problem is it? What are its causes or contributing factors? Defining the problem is indispensable to its solution.
- Be objective: we try to encourage open and equal access for all people to obtain information and take part in public decision-making processes. We are concerned with *what* is right, not *who* is right.

The overarching question becomes: how can agriculture remain viable yet become more resource-protecting and compatible with urban expansion? If farming is to continue near development or near fragile environments, we must aid farmers to find new ways to fit into the urban and suburban character of rapidly urbanizing counties. We must help farmers, through research and extension, to find ways to farm with fewer pollutants and less offensive odors, flies, dust, noise, and other conditions irksome to nonfarm neighbors. We must help farmers explore ways to enhance agriculture's contribution to the urbanite's quality of life, for example by offering greater tourism and recreational access to the general public.

Unless more regenerative and sustainable farming systems are adopted, farming increasingly will become a residual rather than a preferred land use—existing only where pressures for development have not prevailed and away from fragile environments such as those of the coastal plains of the mid-Atlantic region. Biotechnology that creates new products from farms or lowers farm production costs will not solve this problem. Instead biotechnology is needed that will raise the "state of the art" of agricultural production facilities and practices to the level of unobjectionable, including biotechnology that will actually clear the environment such as by removing excess nitrogen from the soil.

The burden is on the agricultural industry to work progressively with planning and zoning officials and health and environmental agencies. Dr. Gerald Cole, chair of the University of Delaware's department of food and resource economics, in a recent speech pointed to the example of the California turkey industry. According to Dr. Cole that industry organized as the California Turkey Forum in 1984 and established interactions with the county governments and health and environmental agencies. The forum has helped to formulate siting guidelines and management standards for turkey facilities in a four-county area, as a means to abate nuisance complaints about turkey production. Additional counties are asking for similar help. Dr. Cole and I share the view that if commodity groups come up with facilities siting guidelines and management standards that integrate buffer zones, landscaping, architecture, and performance standards, and offer to work with regulatory agencies to incorporate these guidelines and standards into regulations, the effort would be worthwhile. Colleges of agriculture can contribute knowledge essential to this process.

In recent months Delaware Cooperative Extension has been engaged in preparation of our 1992-1995 plan of work. This process began with a list of broad social, economic, and environmental concerns facing the people of Delaware as identified by our strategic planning task force. The list of concerns was turned over to our futures committee, which was asked to develop short, concise situation papers on each concern, its impacts on the people of the state, and the feasibility of an educational programming response by extension. The situation papers were then used by the strategic planning task force to help recommend priorities for educational programming by Delaware Cooperative Extension over the next four years.

Frequently appearing among the concerns identified by our strategic planning task force, and addressed by the 35 situation papers developed by our futures committee, are the many issues of growth management. I'd like to share with you a little of this perspective from our futures committee situation papers.

The hustle and bustle of today's society makes country living seem a likely escape from urban life. Unfortunately, many urbanites who move to the country are not aware of some of the drawbacks of country living. Living close to farms puts people in proximity to unfamiliar animal smells, dust, pesticide sprays, agricultural noises, and a myriad of other causes of potential conflict between farmers and their non-farm neighbors.

This results in a dilemma that is not easily resolved. Educational efforts need to be made to let people know of the drawbacks of country living. This may be enhanced through legislative efforts to assure that sellers must pre-notify buyers that their land is adjacent to agricultural land and provide a list of generally accepted practices on agricultural land. Farmers need to realize that they may not be able to spread manures or spray pesticides on weekends and holidays when their neighbors are likely to be engaged in outdoor activities. Both sides need to realize the importance of consideration and communication in an effort to avoid legal confrontation.

Educating both sides as to the consideration needed to avoid dispute may be helpful. Extension's role as an educator can go a long way in helping people learn how to manage rural-urban conflicts through negotiation. Also, extension can serve as a sounding board to help legislators find viable alternatives to avoid these conflicts.

The future of agriculture in an urbanized setting involves collaboration between farm and urban interests to maintain a sustainable, profitable agriculture. Preservation of agricultural land is not a viable alternative unless agriculture is profitable and the agriculture community is supportive of any preservation program.

Farmland has great value beyond its food production capability. It provides groundwater recharge, scenic amenities, wildlife habitats, open space, a connection with the nation's agrarian heritage, and it supports regional economic diversity. These values need to be included in a discussion of land use issues and alternatives.

Some of the pertinent land use issue questions I've heard asked include: by *whom* and *why* is there a concern about land use policy? *What objectives* do those desiring planning have in mind? *Who* should be involved in the formulation of a suggested policy? *What* process will be used to develop the policy? What are *all the options* available in developing the policy measures? And *where* will each option, if adopted, lead?

Here are two approaches that would help to focus future extension activities on growth management:

- Formation of an interdisciplinary growth management team in the college of agricultural sciences integrating both resource protection and compatible urban expansion in its mission.
- Extension, through public policy education methods, should seek to increase the understanding of land use issues, proposed legislation, mechanisms for implementing land use policies and the consequences of various legal, physical, and economic actions on the land.

Extension has been a prime source of information for rural people. In urbanizing areas, many organizations offer information. Extension may serve best through a "middle man." If citizens look to civic groups, planning agencies, or other organizations for information they need, extension should not compete but instead should provide these organizations with information that can help them do a better job.

Urban expansion into rural areas tends to benefit mostly new homeowners and the businesses that serve them. Land use controls tend to protect the neighborhoods of middle- and upper-income classes of people. This isn't to say that urban expansion and typical land use controls aren't good. Instead, I'm saying that urbanization leaves some people no better off and maybe worse off. Extension has a role in meeting their needs as well.

Delaware's strong economy has meant prosperity for many, but not all Delawareans. Recent robust economic growth has not kept pace with the increases in human needs, caused by demographic factors and structural shifts in the state's economy. The decline in jobs in the manufacturing sector, the growth in the finance industry, plus other structural changes, have meant more economic opportunity for many, but unemployment for others. A large percentage of the new jobs created in Delaware are in sectors in which earnings are generally low and benefits sparse.

Despite abundant housing choices for middle- and upper-income people, the lack of affordable houses for other Delawareans is a major concern. As rents have grown, the number of affordable rental units has declined, and an analysis of housing affordability in Delaware's most populous county estimated that 47 percent of the residents could not afford the lowest priced on-site new home.

The number of homeless families seeking emergency shelter and traditional housing exceeds the units available. Thirty-nine percent of the homeless in Delaware are children. Women and children make up 75 percent of the shelter population in Delaware.

Summing up, in my view rural development is not complete until the people of an area know how to manage the development achieved. Let me close by suggesting that growth management can and should become a focus of major Extension programming in rapidly urbanizing states. Extension's role is to encourage creative thought and provide information vital to maturing of the community planning process and improving growth management in the interest of *all* citizens, not only the middle- and upper-income classes.

# Rural Areas, Urbanized Regions and the Great Challenge to Land Grant Universities

Joseph E. Kunsman*

In preparation for this symposium we were given a title and two questions. The title you have before you. Here are the two questions with my responses: From your perspective, what do you see as the greatest challenge facing the land grant system in the next decade? There is one major challenge facing the land grant system and it affects teaching, research and extension. That challenge is the relevance of our undergraduate education to the new world order.

The second question: How does the land grant system answer these challenges? The answer—change.

In 1855 Chief Seattle wrote to the president of the United States regarding yet another sale of Indian land to the expanding American republic.[1] This famous letter begins with the question and comment: "But how can you buy or sell the sky, the land? The idea is strange to us."

Further on, Chief Seattle asks another question that our society has avoided dealing with for nearly all our history: *"Your destiny is a mystery to us. What will happen when the buffalo are all slaughtered? The wild horses tamed? What will happen when the secret corners of the forest are heavy with the scent of many men and the view of the ripe hills is blotted by talking wires?"*

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*University of Wyoming

[1] Joseph Campbell, *Transformations of Myth Through Time*. Harper and Row Publishers, NY, 1990.

Questions regarding what to do about significant change have never been a favorite of Americans, even less so for academics.

Yet the tide of change seems to be running high and hard. The Chronicle of Higher Education recently reported that many university presidents are saying a new paradigm involving teaching must be developed to move their institutions into the twenty-first century.[2]

The president of the University of Michigan feels the current reform movement will result in totally different ways of looking at higher education.[3]

No less a myopic journal than *Science* recently published an excellent editorial on the new appreciation for university teaching. The editor pointed out that maybe, "The title of professor should be given only to those who profess (and) it is perhaps time for universities to reserve it for those willing to be an earnest part of the community of scholars."[4]

The Carnegie Foundation for the Advancement of Teaching issued a report, "Scholarship Reconsidered: Priorities of the Professorate."[5] It is suggested that scholarship be defined as the discovery of new knowledge, the integration of knowledge, the application of knowledge, and teaching that knowledge.

Donald Kennedy, Stanford's president, announced a $7 million program of incentives to improve the teaching of undergraduates.[6] A typically Stanford type solution to academic problems, unfortunately not available to all of us.

Last month I participated in a national curriculum conference dealing specifically with the problem of undergraduate education in colleges of agriculture. The conference, held at the National Academy of Sciences, featured university presidents, deans, directors of research and extension, and faculty. The conference was most rewarding. Its thesis, simply stated, was that in a new world order in constant change we need educational change of significant magnitude in order to be able to compete.

Consider:

- A major ideology in Eastern Europe falls not in years but weeks.
- A major war fought between the world's second largest army and fifth largest army takes not years but days.
- And when the Japanese stock market fluctuates, Wall Street and Nebraska grain farmers alike respond not in hours but seconds.

The American distaste for planning, thinking and problem solving will not serve us well in this antebellum world.

Yet in our teaching programs it's business as usual.

I have listened with interest as the speakers preceding me have shared a litany of problems and concerns dealing with urbanization. And I know full well that in most cases we are not providing the kind of graduates the problems deserve.

Frank Newman speaks even more precisely to our dilemma in his Carnegie Foundation Special Report: "Higher Education and the American Resurgence."[7]

Dr. Newman notes: "The economic times have changed. Ours is a more technological, more international, but most of all more dynamic world. This country's ability to compete and to lead is dependent on the nature and quality of higher education. An understanding of technology is important to graduates, but so is the capacity to take initiative, to be creative, to understand the international nature of the world, and to comprehend the need to both compete and cooperate."

Our educational system is the envy of all the world. Its incredible achievements need not be chronicled here. Yet there is work to be done, important adjustments to be made.

Let me comment on three major adjustments that must be made to ensure we prepare graduates to deal with American urbanization problems as well as many other pressing needs.

Many years ago we bought enthusiastically the concept of the German research university. And the research/teaching amalgam we have forged is our pride and heritage.

However, we must acknowledge that we are faced with a difficult and troubling dialectic.

One is reminded of the Indian mystic who, upon entering a temple, looked at the holy image and debated within himself whether God had form or was formless. He passed his staff from left to right. The staff touched nothing. He concluded God was formless. Then he passed the staff from right to left. It touched the image. He understood that God had form.

Of course, dialectics work well in Indian mysticism, less so in tightly budgeted, self-indulgent, immoderate universities.

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[2] Karen Grassmuch, "Some Research Universities Contemplate Sweeping Changes Ranging from Management and Tenure to Teaching Methods." *Chronicle of Higher Education*, vol. XXXVII, No. 2, September 12, 1990.

[3] Ibid.

[4] Daniel E. Koshland, Jr., "Teaching and Research." *Science*. Vol. 251, No. 4991, January 18, 1991.

[5] *Scholarship Reconsidered: Priorities of the Professorate*. Princeton University Press, Lawrenceville, NJ, 1991.

[6] Kenneth S. Cooper, "Stanford President Sets Initiative on Teaching." *Washington Post*, March 3, 1991.

[7] Frank Newman, *Higher Education and the American Resurgence*. A Carnegie Foundation Special Report. Princeton University Press, Lawrenceville, NJ, 1985.

The teaching and research amalgam is our strength but also our dilemma—a dilemma worthy of our immediate attention.

A second dilemma seeking remedy is that of teaching prestige and reward. Obviously, for the noblest of professions a noble reward is due. Assuring an appropriate reward for our finest teachers is a difficult but achievable task. It should be pursued with vigor at the local and national level. Yet I feel a complementary note must be sounded here.

Several years ago I had the opportunity to attend a presidential conference on excellence in education.[8] One of the highlights for me was the keynote presentation by Senator Richard Lugar. I remember his making the point that we could no longer get by in education on the backs of dedicated missionaries. It was a popular theme at the conference and I shared it with many of my colleagues. But over the years the more I thought about it the less I believed it. Dedicated missionaries make the learning experience.

Someone once said that the most important ingredient in good education is the appetite—appetite of teacher as well as student. That appetite is what got all of us to the college and university in the first place. I never cease to be amazed at those surveys that show that college and university faculty, given the choice, generally have a preference for teaching before research. It's a noble task and we like being noble. Encouraging that nobility may be one of the easiest reforms to implement improvement in our present educational system.

The third dilemma I wish to share with you is most illustrative of the specific problem we began with—relevance of undergraduate education.

One of our major problems at the university is our structure. We have departments—animal science, economics, chemistry, plant science, sociology—and we offer courses in plant physiology, microeconomics, organic chemistry, rural sociology. But here is the problem: in the real world there there is no problem called chemistry or sociology or animal science.

Real world problems are part chemistry, part sociology, part animal science, economics, religion and a lot more.

In many instances we are allowing the professional societies to drive our course content and structure. We teach specifically what we research and what we research is, by nature, mighty specific. We are not educating for our society and our times. We are just sharing soon-to-be-obsolete information.

Where is our synthesis? Where is our student/faculty involvement? Where is active learning?

Did we ever stop to ask ourselves, if all pedagogical research indicates that the lecture style of teaching is the most inefficient, why are 90 percent of our classes lecture?

Several recent surveys of potential employers of our graduates as well as anecdotal information reveals that employers are mystified because our students can't seem to work in groups and task forces to solve problems. Big surprise. We never asked them to. They get an "A" for desultory listening to a lecture but an "F" for participatory learning and problem solving.

There's still more to the problem. We send our students off to the local arts and humanities college ostensibly to get a broad, general, liberal, or whatever euphemism we misuse, education. Have you talked to a humanist lately? They are as narrow and as vocational as we are plus they seem blind to modern technology. Our students don't get a broad, general, even liberal education by leaving our college. It's just more academic tunnel vision.

I wish I could remember where I read it, but it seems that Carl Jung was commenting on a weekend visit he experienced with Albert Einstein. He said the first half of the visit Einstein struggled to try to explain relativity to Jung. The second half of the visit Jung labored to articulate the concepts of psychoanalysis for Einstein. The point of the story is we have developed a situation where educated people can no longer converse with one another.

What is the solution to this dilemma? The solution is true general education. Let me try to define it for you using attributes presented in the very excellent book *The Meaning of General Education* by Gary Miller, Associate Vice President for Instructional Development at the University of Maryland University College.[9]

True general education is purposeful. It is designed to meet the needs of the individual student as well as the community.

True general education is comprehensive. It is comprehensive in the sense that it gives equal weight to goals, procedures, methods, as well as content. It is comprehensive because it is not limited to classroom activities. The real world is considered a laboratory. The student is involved in his own learning experience—active learning.

And general education is comprehensive because it points to and encourages lifelong learning.

Finally, true general education is concerned with democratic processes and a democratic society. As Dr. Miller so clearly emphasizes, "It is student centered and future oriented."

In summary, general education is more "concerned with skills of inquiry, hypothesizing, problem solving, values and attitudes than with specific areas of knowledge."

Obviously, if we are serious about intervening in our undergraduate educational experience we will have to commit to some pretty radical changes.

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[8] Richard G. Lugar, Senator, "Keynote Address." National Forum on Excellence in Education, Indianapolis, IN, December 8, 1983.

[9] Gary Miller, *The Meaning of General Education*. Teachers College Press, New York, 1988.

We will obviously have to refine our teaching/research amalgam, not at the expense of either, but to the betterment of both.

Obviously we will have to figure out how to appropriately reward the noble, to venerate those who actually profess.

A basic restructuring of our courses, curricula and faculty academic residencies is called for also.

It's time for the ag faculty to take charge of the whole educational experience of our students. It's too important to leave to others.

Maybe colleges of agriculture as well as the experiment stations will have to hire faculty with expertise in agrarian literature, rural history, ag policy, and rural ethics, maybe in place of a plant pathologist or a reproductive physiologist.

It could be exciting. It won't be easy.

Of course, there is only one worry. And that is that we will do nothing. Academics have a magnificent history in this regard.

Let me close with one last illustration.

Months ago many of us were thrilled by the production on PBS of Wagner's Ring Cycle. Four operas, 16 hours of the world projected in myth and music. Woton, the one-eyed sky god, and his accompanying pantheon represent, of course, humankind. But I saw a special kind of humankind, the academic, the college professor.

The first opera in the cycle, *Das Rheingold*, is most instructive for us and serves as a fitting conclusion to my remarks.

Woton, sky god and flawed hero, spends most of this episode attempting to manage human avarice, using his half-blind intuition. As expected, his efforts result in intrigue, hatred and general human disorder. Frustrated by his limitations and the enormity and complexity of the task, Woton decides to abandon the real world and retreat to Valhalla, his mystic castle in the sky.

*Das Rheingold* concludes with Woton and his entourage of lesser gods majestically crossing over reality on a beautiful rainbow bridge to the sky castle.

We in academe have a magnificent history of retreating from the world and its messy problems to our mythical ivory towers.

Yet this republic of ours and its citizens have placed great, if not also slightly misplaced, confidence in us. They also invest a goodly portion of their fortune to support our efforts. This significant confidence, financial investment, and the enormous importance of our task must elicit from us not a retreat, but a herculean effort to provide the best and most applicable undergraduate education.

Wagner's Ring Cycle begins with Woton's retreat from the world he has helped create and, as a result, it ends 16 hours later with *Gotterdammerung*, the twilight of the gods. Not a comforting analogy in this most robust of times. Maybe it's best then that we accept our challenge: To produce educated individuals prepared for sensible planning. Sensible planning towards rural urbanization and a plethora of other twenty-first century world problems.

# Rural Poverty in the Northeast Region: Perspectives from Upstate New York

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Rural America is a place of both persistence and change, a mix that is especially true in connection with poverty: rural poverty continues even while undergoing significant change.

In the rural Northeast, there are some localities where poverty is "as old as the hills," continuing generation after generation (Fitchen 1981). For example, the depressed rural neighborhoods where I conducted ethnographic research in the early 1970s had been identified a half-century earlier by rural social scientists as poor and "backward" areas; and now with two more decades elapsed, each neighborhood has a few more shacks and trailers, a new, larger batch of kids getting on the school bus, and broken-down cars out front that are only slightly newer. Pre-school children I watched earlier have now grown into an adult life of poverty and problems just like their parents, and are raising a new generation of children, one already marked by predictors of continued poverty: health problems, developmental delays, and early difficulty in school. This entrenched poverty carries on without much change at all: only the cast of characters turns over as old people die and a new generation is born.

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At the same time, however, rural poverty is undergoing change (Fitchen 1991:115-150). Some of the change is positive, as in the increasing number of low-income single mothers who are taking advantage of a variety of new educational and case-management programs that supplement welfare and help lift them and their children out of poverty. In some communities, men and women are able to take advangage of a new partnership between local schools and agencies that have mounted a determined attack on illiteracy as one way to break the on-going cycle of poverty. More of the change in rural poverty, though, appears to be negative: more rural families are now being thrown into poverty, adding a new layer of poverty on top of the intergenerational poverty that already existed.

Deterioration of rural employment, resulting from economic stagnation and transition from a manufacturing to a service-sector economic base, has been compounded by trends towards single-parenthood and marital instability, dropping many rural families into poverty. The rural housing situation, too, has changed for the worse in many places: market and regulatory forces have combined to make fewer inexpensive housing units available at a time when the number of poor families is growing. As a result of these economic, family, and housing changes, residential mobility is becoming an increasing problem among the rural poor.

This paper draws on field research in New York state to illustrate the current situation in rural poverty, both persistence and change. While my research in the 1970s was ethnographic and very localized, my current work covers a broader range of places, including communities in sixteen rural counties spread over three different regions of the state, and utilizes two different approaches to data collection, the individual and the institutional.[1] I have recently conducted unstructured but focused interviews with over twenty low-income families, have conducted several focus-group interviews with low-income women, and completed thirty questionnaire-based interviews probing family residential history. Simultaneously and in the same communities, I have conducted dozens of interviews and several focus groups with people in service agencies, public schools, and other community groups knowledgable about the local poverty situation, spent numerous observation periods on location in agencies and organizations, and collected poverty-related data from their records, reports, and grant applications.

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To provide context for my research findings, the main body of this paper will be preceded by an overview of recent poverty trends in rural New York. In the central sections of the paper I describe the settlement patterns of rural poverty and indicate the causes of increasing poverty, including both endogenous and exogenous causes, and then discuss residential mobility as one characteristic of rural poverty that appears to be dramatically increasing. I end the paper with a brief statement of five broad research conclusions that have special salience for remediation and prevention of rural poverty. I also argue the need for more policy-relevant research to guide initiatives that would be appropriate to the particular characteristics of poverty in rural settings.

. . . on the national level, rural poverty rates have historically been higher than metropolitan poverty rates.

Given the expertise this audience already has about rural issues, augmented by papers on rural poverty that were presented to the National Rural Studies Committee in previous years (e.g. Ross and Morrissey 1989; Brown and Warner 1989), a national portrait of rural poverty need not detain us here.[2] It is sufficient to remind ourselves that on the national level, rural (or non-metropolitan) poverty rates have historically been higher than metropolitan poverty rates. Although in the 1960s and 1970s the difference diminished, after 1980 rural poverty rates rose more rapidly than urban. Thus, by 1986, the nation's non-metropolitan poverty rate had reached 18 percent while the metropolitan rate was only 12 percent (O'Hare 1988, p. 6; Porter 1989, p. 26), bringing the poverty rate in rural America up to virtually the same level as in the nation's inner cities. Subsequently, the rural poverty rate dropped a bit, which the central cities rate did not.

The rural Northeast was not as severely hurt by the recession of the early 1980s as were some other regions of rural America, and, in general, recovery was stronger. Over the course of the decade, however, disparities between metropolitan and non-metropolitan areas of the Northeast have continued and even grown, leaving rural counties in the aggregate better off than they were in 1980, but farther behind relative to the region's cities. In the heavily settled Northeast, rural poverty rates are affected not only by local rural cities, by urban economic growth and urban problems, by suburban sprawl and exurban development. The 1991 regional economic picture makes it doubtful that the rural Northeast will escape the brunt of the current recession. In fact, the tenuousness of the recovery in some of the region's rural areas in the late 1980s is now becoming apparent: optimism that was exuded in 1988 and early 1989 has already been replaced in several rural localities by a "hunkering down" attitude as the local economy returns to old patterns of high unemployment and growing welfare rolls. A more detailed examination of the situation and changes in rural poverty in New York may shed light on what is happening elsewhere in the Northeastern region as well.

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[2] A number of excellent papers and publications on rural poverty have recently flowed from various organizations and individuals, including the Economic Research Service of the USDA (e.g. Deavers 1989; Hoppe 1989), the Ford Foundation's partnership with the Aspen Institute's Rural Economic Policy Program (e.g. Gorham and Bluestone 1990), the Population Reference Bureau (O'Hare 1988 ), and the Center for Budget and Policy Priorities (Porter 1989; Shapiro 1989; Lazere, Leonard, and Kravitz 1989), as well as a forthcoming edited volume summarizing the varied regional and structural poverties of rural America (Duncan, forthcoming).

### Upstate New York example: Growth and worsening poverty

Using New York's official definition, about 3 million people and 44 of the 62 counties in the state are classified as rural, though with varying degrees of ruralness (Eberts 1984). Poverty is unevenly distributed around rural New York: rural counties closer to the state's metropolitan areas have generally had lower poverty rates, lower unemployment rates, and higher per-capita income, while the more remote counties have fared less well on these indices. For example, in New York's eight counties classified as the "most rural," a 16 percent poverty rate in 1980 tied with the New York City metropolitan area rate, but was significantly higher than that of the upstate metropolitan areas and the rural counties adjacent to them.[3] A tabulation of poverty rates by school districts reveals that at that time, at least eight rural school districts had 25 to 29.3 percent of their school-age children living below the poverty line—a rate of poverty surpassed only in New York City (30 percent).

At the start of the 1990s, the incidence and distribution of poverty in New York are undergoing considerable change. Certain rural counties, especially some that are adjacent to healthy metropolitan areas, have declining poverty rates; but certain other counties are incurring major unanticipated increases in poverty. In some rural counties, welfare rolls rose as much as 18 percent or more from April 1989 to April 1990, while in the state as a whole welfare rolls increased only 1 percent (Pear 1990). While New York City's welfare rolls rose only 7 percent in that twelve-month timespan (Terry 1990), one rural New York county recorded a 7 percent increase just in the first three months of 1990. Food stamp applications, another indicator of poverty or near-poverty, have recently increased as much as 20 percent or more in some rural counties, a much steeper increase than in the cities. Significantly, growth in food stamp recipients was greatest in the non-public assistance category, that is, among people who are employed rather than on welfare, "the working poor."[4] In many communities within the sixteen counties of my research, local agencies and schools are reporting—but have not been able to document accurately—a dramatic increase in the number of poor people in their locality, and also the greater depth of their poverty. For example, in one county a community action agency reported a 25 percent growth in emergency services in 1989, mostly for people "showing up at the door with no money, no food, no housing, and no job." This growth in poverty, it should be noted, came before there was general public and governmental recognition that the national, regional, and state economies were in a recession.

In some respects, poverty in the rural Northeast is quite different from that of the region's cities. Most notably, minority populations have constituted only a small percentage of the rural poor, reflecting their generally small proportion in the total rural population of the region. The minimal role played by race or ethnicity in rural poverty makes rural New York quite different from metropolitan New York, and also different from some regions of America, particularly the South and Southwest, where rural poverty is highly correlated with ethnic or racial factors (Brown and Warner 1989). However, in a few localities in rural New York, an ethnic or racial component of rural poverty has long been present, and in some it is now increasing considerably, as we shall see below.

### Settlement patterns or residential expressions of rural poverty

Rural poverty also differs from urban poverty in this region in obvious—but important—physical attributes and appearances; and so I turn now to the feature that most clearly distinguishes rural poverty, its settlement patterns.

### Poverty on farms

Only a relatively small fraction of the state's rural poor population, though an inadequately counted and often neglected population, lives on farms. Some are dairy farmhands, often called "dairy migrants" be

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[3] Other measures of economic well-being also demonstrated the rural disadvantage. For the eight most rural counties, the 11.2 percent unemployment rate in 1980 compared to a 6.7 percent rate in the metropolitan counties; and together these eight rural counties earned only 77 percent of the median family income of metropolitan counties (Eberts 1984). Subsequently, the rural disadvantage increased: what had been a $5,000 per capita income gap between the eight most rural counties and the eighteen metropolitan counties in 1981 had grown to nearly a $7,000 gap by 1986; and per capita income in the eight most rural counties had fallen to only 60 percent of the level earned in the metropolitan counties. In 1988, there was a 6.0 percent unemployment rate, on average, in the eight most rural counties, while the statewide rate stood at 4.3 percent (Eberts and Khawaja, 1988, pp. 9-11).

[4] The number of individuals receiving food stamps in New York state in April 1990 was 8.6 percent above the 1989 monthly average. However, while New York City's food stamp growth in this period was only 5.6 percent, some rural counties witnessed a growth in food stamp clients of 18 to 20 percent or more.

cause they circulate through one dairy farm after another, moving on average about once every year or two. They are paid a wage that may leave the family below the poverty line and cash-poor, even though their housing and their milk and firewood may be provided by the farm operator-employer. As farming has been undergoing consolidation into more favorable areas and larger farms, some of these dairy migrants have been displaced, which leaves them with no marketable skills and no job-provided housing, and thus poorer and more needy than before. Another segment of the farm-related poor is the more truly migrant population, the non-dairy laborers, mostly Blacks based in Florida, who circulate through the state and the region on a seasonal basis, and usually live temporarily in grower-provided housing on the fruit and vegetable farms. Sometimes they are caught in the area for a longer period of time than expected and with no income and no job-related housing, as when a crop is delayed, or when anticipated employment falls through—perhaps because a new pool of migrants from Mexico or the Caribbean has been imported to do the work for lower wages.

Probably the largest component of poor people on farms is made up of elderly owner-operators living on marginal farms that are no longer commercially viable, but that still yield a limited subsistence to combine with a meager pension from earlier off-farm employment and provide a cheap place to live. Though unable to afford adequate amenities and services as they live out their later years in a crumbling farmhouse, most are unwilling to ask for assistance of any kind.

In some places, a younger generation is also living on marginal farms and in poverty. These situations, which have turned up in several of my interviews, typically involve a young family living on a farm that belongs to grandparents or a surviving widowed grandmother. They are not the professional exurbanite back-to-the-land enthusiasts, but local people who grew up in meager surroundings or who have recently fallen into poverty due to employment and family situations. Instead of living in a village apartment and struggling to get by with income from low-level service-sector jobs or welfare, they are trying to make their living and raise their children on the grandparents' small farm, perhaps supplemented by a modest off-farm income. Interviews with members of this grandchild generation reveal that although these marginal farms provide a below-poverty or near-poverty income, the families are living inexpensively or rent-free in fairly secure family-owned housing. Some are purchasing the old farmhouse on a flexible agreement with a grandparent, or purchasing on a "pay when you can" basis a bit of the grandparent's land on which they have put their own trailer. Members of this young generation are more connected than their grandparents to the agencies and services of the villages and county seats: their children attend Head Start, they participate in WIC, and they use food stamps.

> . . . the percentage of the rural poor who live on farms appears to be quite small and not growing.

However, just as the growth in rural poverty in New York and the Northeast is only in very small measure attributable to agricultural causes, so also the percentage of the rural poor who live on farms appears to be quite small and not growing.

**Poverty in isolated open-country depressed neighborhoods**

Chronic and tenacious intergenerational poverty has long characterized many small clusters of dilapidated or substandard homes scattered through the open countryside in places where agriculture has long since disappeared. The dwellings, usually fewer than a half-dozen together, include run-down farmhouses, unfinished frame houses with second-hand windows and unmatched roofing materials, very old trailers encased in wooden additions, and shacks made of used lumber and covered in black sheathing material. Residents of these pockets of poverty must travel, often over fifteen miles in old patched-together cars, in order to work, attend school, shop, and tend to matters involving county offices and service agencies. A greater problem than geographical isolation, however, is social isolation from the larger community in which they are stigmatized and avoided.

In the neighborhoods I studied intensively in the 1970s, most of the adults had grown up in poverty, either in the same locale or in a similar pocket of poverty nearby (Fitchen 1981). Their parents before them had made an unsuccessful adaptation out of agricultural labor positions or subsistence family farming on marginal land, and they themselves had become workers in the lower-paying jobs on highway and public works crews and in low-skill construction, maintenance, janitorial, and manufacturing jobs in the region's larger towns. Families were frequently kicked below the poverty line by an accident, illness, or the primary earner's loss of a job. Households survived by means of a variety of strategies that minimized cash outflow and increased income, and maintained themselves from crisis to crisis through networks of relatives and friends, also poor and usually living nearby.

The same open-country pockets of poverty I studied intensively through the 1970s, as well as the others where I conducted brief interviewing, are still there today. The number of houses and people has grown, however, and new offshoot or satellite neighborhoods have also appeared, accommodating a population growth that comes mostly from "natural increase" rather than in-migration. Initial follow-up in some of these depressed neighborhoods indicates that most households have continued a pattern of just getting by but never getting ahead. Many of the youngsters included in the earlier sample eventually settled close to the parental home, some in trailers placed in the side yard. Some became parents very early, and now their children are growing up in these same pockets of poverty, already identified by schools, public health officials, and family courts as children at risk. While the older people may receive little except transfer payments from community and governmental programs, their children and grandchildren are increasingly connected to services and agencies of the county seat.

These open-country pockets of poverty continue to be characterized by housing that is substandard and patched together. In one rural county, for example, the most rural townships have perennially had high poverty rates (between 16 and 20 percent in 1980, compared to the overall county poverty rate of 9 percent); in the three sparsely settled townships with a lot of poverty, over ten percent of the housing units lacked complete plumbing; in one township, over 18 percent of the housing was in this category. Elsewhere, housing surveys conducted in connection with recent applications for Farmers' Home Administration home improvement grants indicate that the percentage of open-country housing ranked substandard is still high, and the occupants are still poor. For example, in a county adjacent to the one cited above, 54 percent of residents of a sparsely settled township were counted as eligible in terms of housing needs and household income for the FmHA low-income loans (although few families actually received loans). Inadequate as much of the rural housing may be, though, the fact that most of it is owner-occupied and located in remote areas has worked to the advantage of low-income residents. Using traditional make-shift strategies and relying on ingenuity and kin ties, many families in these depressed neighborhoods have remained housed and residentially stable.

### Poverty in trailer parks and informal trailer clusters

As in many rural areas throughout the nation, trailers (officially mobile homes) are the hallmark of limited rural incomes. Many of the less expensive mobile home parks are located at the edge of villages and along country roads, often squeezed onto an undesirable piece of land, such as a little parcel between the highway's edge and a river. These parks are packed with low-income households, although they generally include a mixed population of working and non-working people, and some who are slightly above the poverty line. Some of the trailer parks are expanding: new tiers of driveways lead to new rows of trailers; more mailboxes hang off the structure at the entrance to the park, and more trailers are squeezed in between existing ones, overtaxing the available water supply and often leading to further deterioration in the social environment.

Some mobile home parks could more accurately be described as private-sector low-income housing projects. In one park with 39 trailers where I conducted some interviews, 38 households were at least partially supported by public assistance. The park is in an isolated valley, with no town and no employment within about fifteen miles. Thirty miles away is the county seat, a dynamic small city where rents have risen sharply, low-cost apartments are virtually non-existent, and low-income families are being squeezed out. Tenants of this trailer park readily voice their unhappiness with it as a place to live and their desire to move out soon; some actually did move out but had been forced to return because they were unable to find or keep a place elsewhere. Like many other trailer parks, this one is characterized by social pathology: night-time marital conflicts reverberate into adjacent trailers less than a car's length away; the high level of inter-familial sex and violence is exceeded only by rumors and stories of even more sex and violence; and "hotlining your neighbors" (telephoning the state Child Protective network on the anonymous hotline) is a common passtime. In fact, removal of children from their families on charges of child neglect or abuse is common enough to cause only fleeting comment.

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. . . the high level of inter-familial sex and violence is exceeded only by rumors and stories of even more sex and violence . . .

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Another type of mobile home settlement that is becoming more common is the small informal grouping or trailer cluster, usually containing too few trailers to be considered a mobile home park. Most of these clusters are adjacent to existing houses or marginal farm operations along rural roads, and generally belong to the owner-occupant of the main house. The trailers are mostly old and the tenants mostly poor. Although some clusters with more than three trailers may be in violation of state and local regulations, and are not officially registered, they do provide needed lower-cost rental housing for rural people with limited incomes. Also increasingly common are owner-occupied trailers placed on individual lots, a situation preferred by many but not usually attainable by young families with meager incomes unless they can inherit or purchase, perhaps from relatives, an inexpensive parcel of land.

To indicate the dramatic growth in mobile homes (including both those on individual lots and those in trailer parks), it might suffice to report that in one county under study, mobile homes comprised 52 percent of the additions to the county's housing stock between 1986 and 1990 (*Rural Futures*, December 1990, p. 6). In another rural county where 13.6 percent of the households were living in mobile homes in 1980, several of the poorer rural townships had 20 to nearly 30 percent of households living in mobile homes. However, as suburban growth emanates outward from healthier towns and cities into adjacent rural areas, mobile homes are redistributed on the landscape: the more affluent townships and villages ban or tightly restrict mobile homes, leaving other municipalities to become catchment areas for all the people who want to live in the countryside but cannot afford a "conventional" home.

**Poverty in converted apartments in villages and small towns**

The fastest growing settlement pattern of rural poverty is occurring in some small villages and hamlets beyond the suburban fringe. In many of the rural counties of New York, one or two hamlets or villages now have an increasing number of low-income families living in rented apartments scattered among the community's owner-occupied houses. This phenomenon, while not new, is growing now, and is the result of a localized housing surplus that has been created by long-term economic decline and population loss. As elderly homeowners have given up their homes or died, and as young adults have left town, houses become vacant and may remain so for years, unmarketable as single family homes because no new home-buying families are moving to the village. However, with a severe shortage of low-cost rental housing in the region's more prosperous towns and cities, a ready market exists for cheap apartments. Eventually, family heirs or outside investors convert the vacant house to apartments, often with minimal renovation or updating, and rent them out at rates just low enough to attract people on welfare or at the low end of the local wage scale. Similarly, vacant store buildings, the excess commercial space of small towns, are also converted. As apartments are filled, more vacant houses and stores are converted, and more lower-income families move in. Because so little rental housing is available within the price range affordable by people marginally employed or on welfare, owners of vacant houses and commercial buildings in small, declining towns can easily find tenants to rent the apartments they create. Many landlords, in fact, have arrangements with local welfare departments to rent to their clients and receive payment directly from the department.

Most of the tenants in these village apartments are poor. Many are parents (single mothers, married couples, and loose pairs) in their teens and twenties who want independence from their parents, but cannot afford better housing. Employment is problematic, as the villages undergoing such housing conversion tend to be places with stagnant or declining economies. Tenants who do have jobs earn low wages, while others are without work and without reliable transportation to get to a job if they had one. Many tenant households are supported partially or completely by welfare. Although friendship and informal support networks link some of the tenants, tension, distrust, and violence among neighbors are common.

. . . tension, distrust, and violence among neighbors are common.

Some of the smaller hamlets and villages undergoing conversion are located on the peripheries of counties, remote from the more prosperous central towns or cities. In one such village in central New York, population had declined in the early 1970s from about 400 families to about 300, but began growing again toward the end of the decade when some vacant single-family homes were converted to apartments. By 1980, the village's poverty rate was twice that of the county, and further conversion since then appears to have swelled the local population of poor people, many of them driven out of the county seat by high rents there. A large fraction of houses in the village now contain two or more rental units; one architecturally elegant old house now holds a dozen apartments; and more spaces above stores are currently undergoing conversion to apartments. Conversion is also occurring in larger villages located along a train or bus line connecting to a metropolitan area as much as a hundred miles away. In one such case, whole blocks of single- or two-family homes have recently been converted to apartments, most of them owned by absentee landlords, and most of them occupied by low-income tenants.

The pattern of conversion of small-town houses and stores into apartments is not new, and most of the research counties in this study have long had at least one or two such communities, known locally as "poverty towns." But in recent years, there has been redistribution of the apartment-dwelling low-income population: some of these communities are now rebounding, and their lower-income residents are moving out, while oth[illegible]mmunities are undergoing further conversion [illegible]tion, and experiencing rising poverty rates, [illegible] communities are only beginning the transition.

Poverty is increasing in rural New York because significant changes occurring in rural employment have been compounded by changes in family structure and stability, making the 1980s a bad time for those already poor to climb out of it, and for those just barely above the poverty line to avoid falling below it.

### Decline of manufacturing, and transition to low-wage service jobs

In the Northeastern region, almost all rural economies have been affected by downsized manufacturing, increase in overseas assembly, and shift from manufacturing to service-sector employment. Rural New York counties, where manufacturing employed as much as 25 to 35 percent of the workforce as recently as 1980, suffered plant closings, layoffs and cutbacks since then that brought official county unemployment rates up to 12 percent or more and maintained high poverty rates (Fitchen, 1991: 58-69). After 1986, though, rural employment expanded somewhat, spurred by the strength of nearby metropolitan economies, by such localized effects as the expansion of a military base or the construction of a state prison, and by growth in retail and food service business. However, job growth in the Northeast was limited, placing New York and six neighboring states among the bottom ten nationwide in employment growth in the 1987-89 period (Levine 1990). And as elsewhere in rural America (Gorham and Bluestone 1990), much of New York's rural job growth in the 1980s was in part-time and temporary employment at close to the minimum wage and without health benefits. Thus, although unemployment dropped dramatically in some counties to historic lows of under 5 percent, estimated poverty rates hardly fell at all because many of the new jobs provided only poverty-level incomes. The substitution of less adequate employment in rural New York has generated a significant out-migration to cities in the 1980s, but it has also left many of the remaining rural workers underemployed and poor. In the current recession, earlier employment gains are rapidly being lost, especially in counties farther from metropolitan areas and in places that had not added "recession-proof" employment such as a prison or military base.

> Lacking . . . literacy, high school education, and specific marketable job skills, these men and women are now termed "unemployable."

Another facet of high unemployment/underemployment is the backlog of long-term unemployed people in some rural counties. Where poverty has been a perennial problem, a whole cohort of people who were raised in poverty and came of age during the early 1980s has not yet been employed. The longer they remain out of the employment world, the more difficult it is for them to get jobs. Lacking not only work experience but also literacy, high school education, and specific marketable job skills, these men and women are now termed "unemployable." Unless rescued by a comprehensive program of job preparation and life-skills training, they are not hired even during a period of job expansion.

### Deteriorated marital and family relationships

Rural poverty rates have been further augmented recently by the increase in single-parent families among rural populations, a trend that is growing in various parts of rural America, including the Northeast.[5] In rural economies, where much of the new employment involves part-time service-sector jobs held by women, single-parent families have a much higher risk than two-parent families of being poor. Additionally, as national data show, rural single-parent families in poverty are more apt to remain poor for a longer duration than is the case either for rural two-parent families in poverty or for urban single-parent families in poverty (Ross and Morrissey 1989). Whether the woman who heads a family is on welfare or employed, then, if she lives in a rural area, her family is apt to experience a longer period of poverty.

The flexible, frequently-changed nature of marital status has been probed in questionnaire-interviews conducted with a sample of thirty low-income women.[6] The thirty women range in age from 18 to 44, with a clustering from 23 to the mode of 26. They were distributed over six counties, with 9 currently living in rural open-country houses or farmhouses, 13 living in villages, 5 in trailer parks, and 3 in rural trailers. All of the women had children, and the number of children ranged as follows: 1 child (4 cases), 2 children (10 cases), 3 (7), 4 (6), and 5 or 6 children in one case each. (In three of the larger families, though, one or two of the children are foster children.) The self-described marital status of these women is as follows: 10 women responded that they were currently married, 4 have a stable live-in part ner, 11 reported themselves as separated or divorced, and 5 reported that they are "single" (including never-married and no-longer-married). Their marital histories range from one woman who has been married 23 years to the same man, to a mother of four who has had five "serious relationships" lasting longer than a year each, but has never been married. Thus, the range of marital and coupling arrangements, even in this small sample, is broad. But what emerges most strikingly in the interviews is that among these low-income women there has been a great deal of flux in relationships: some women in their early twenties have had children by three diffferent fathers; only a third of the women were living with a man to whom they were married; and at least half had previous unions or marriages before their current union. (However, since seven of the thirty women were on a special AFDC education program open only to single parents, the tally of marital status may have been somewhat skewed by the sampling procedure.)

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[5] Until recent years, the overwhelming majority of poor rural households contained married couples; but single parenthood has become more common in the general rural population and particularly among the rural poor. The proportion of single-parent households has risen steadily in rural areas in the last few years, even after it has peaked and declined slightly in urban areas. By 1987, 11.6 percent of all rural people in the U. S. were living in households headed by women (Hoppe 1989, and personal communication), and 39 percent of rural *poor* households were headed by women (Porter 1989: 30). While these figures are still low in comparison to the 13.5 percent of the metropolitan population living in female-headed households (Hoppe, personal communication) and 58 percent of the center-city poor population living in households headed by women (Porter 1989:30), the likelihood of a female-headed rural family being poor is just as high as it is for a female-headed family in a central city (Porter 1989, p. 28).

[6] The three main criteria for selection of these thirty respondents was that their household income was near the official poverty line, that they were participating in some programs such as WIC (Supplemental Nutrition Program for Women, Infants, and Children), food stamps, Head Start, or AFDC (Aid to Families with Dependent Children), and that they were willing to be interviewed for this research. Respondents were contacted through these programs or at other service or educational institutions, and were interviewed at a variety of sites including Head Start centers, WIC clinics, and adult education centers, as well as in their homes.

Considerable variation occurs in patterns and consequences of single parenting. Other interviews of low-income families also indicate a dichotomy between the married and the divorced/separated/never-married women. While long-term marriages and two-parent homes are still common, resembling the marital patterns in the rural depressed neighborhoods I studied earlier, it appears that marital stability is now relatively rare, particularly in the village apartments and trailer parks. From interviews with service providers, it appears that women who become single parents by separating from or divorcing a husband somewhat later in life get out of poverty more quickly than those who are younger and became parents while still single. But, as residential history interviews indicated, even the women who had previously been married or coupled experienced periods of being on welfare, of residential insecurity, and even of homelessness after separating from a husband or boyfriend.

## Exogenous causes of increasing rural poverty: Migration of poor people from cities to rural communities

Poverty is now being redistributed around New York state, in some places resulting in a net flow from urban to rural. An important but little-studied contributor to increasing rural poverty is migration: some low-income people are moving from dynamic rural towns and even from distant metropolitan areas to small towns on the periphery, where they gain the financial advantage of lower cost housing. People who had previously been employed in a city at the low end of the wage scale, such as part-time work in retail trades, may be able to find similar marginal employment at nearly the same wage somewhere in the rural area; and they can stretch their earnings farther because of lower housing costs. People who had been on welfare in a city also come out financially ahead by moving to a rural area because the shortfall between the welfare shelter allowance and small-town rents is apt to be less than in the city. Thus, there is no financial disincentive against families on welfare moving to a rural village, and, according to several families who had made this move, an advantage of a healthier environment for their children. People who have moved a hundred miles out of New York city, for example, talk of abysmal conditions in city public schools, the physical dangers of the city, and the omnipresence of drugs ("the day my second-grader came home from school with a vial of crack was the day I decided to move out"). They recite these push reasons not only to an inquiring researcher, but to their relatives and friends back in the city. And so, in a reverse of the historical pattern of people moving along chains of relatives from rural areas to cities, today girlfriends, boyfriends, siblings, casual aquaintences, and even older parents are following a "pioneer" out into the small towns of rural "upstate." These "pushouts" from the cities and from the larger, higher-priced towns of rural counties compose the ready market for renting cheap converted apartments in small towns, and the potential market that drives still more conversion.

> . . . "the day my second-grader came home from school with a vial of crack was the day I decided to move out."

Migration patterns to and from small towns vary considerably around the state. In some remote communities decline of population continues to be the dominant trend, and out-migrants are not replaced by in-migrants. Other communities are becoming retirement areas or rural bedroom-communities, and here, in-migrants are wealthier than the local population. In some places, the lower-income in-migration includes people who are not really newcomers, but locally-raised young adults returning home after finding themselves unable to get the good jobs in Sun Belt economies, or to pay the steep rents of Northern cities.

In some communities, the in-migrating poor population contains a significant number of Blacks and Hispanics, which brings a new diversity to the small town and to the local low-income population. (Such a change in the racial/ethnic composition of the local poor population carries the potential for major impacts on rural communities, a topic that merits research attention.) While state or county figures tieing increased poverty to apartment conversions are inadequate, municipal records can be revealing. For example, one village of 4,650 people in 1986 has experienced a big wave of conversions since 1988. The code enforcement officer reported that 15 percent of available housing in the village is rented to low-income families, that 75 percent of the apartment residents along main street are on social services, and that permits issued in the most recent six month period would convert 25 dwellings into about 50 apartments. By the 1990 census, the village population was still only 4,690, although the surrounding town had grown, but welfare cases with village addresses had increased dramatically.

Urban-to-rural migration of poorer people is neither a new pattern nor confined to New York or the Northeast. It was noted in New York and Pennsylvania during the Great Depression (Brunner and Lorge 1937: 68). More recently, a broad overview of changing villages in the U. S. points out that in times of economic recession people move outward from urban areas to smaller communities in rural areas (Johansen and Fuguitt 1984: 207). A recent forecast of anticipated trends in rural America points to a possible net out-migration from the cities that would add to rural poverty (Breimyer 1990). That migration patterns are indeed making rural America poorer now has been convincingly demonstrated in a new study of national migration figures (Lichter, McLaughlin, and Cornwell 1990). Underneath the net population flow from rural to urban areas in the 1980s, the authors found a pattern of migration from metropolitan to nonmetropolitan areas that is "disproportionately comprised of the jobless, as well as the poor and the near poor (p. 10)." Although in the late 1980s rural areas continued to export their "youngest, best educated, and most skilled" adults (p. 15), metropolitan areas, on the other hand, were "more likely to export their least skilled and their poor (p. 11)." Clearly, the result is an asymmetrical migration pattern that contributes to rural impoverization, at least in some localities, and holds the potential to stress the services and institutions of the receiving rural communities.

## Residential mobility of poor people within and between communities

In the changing scene of rural poverty, residential instability has become much more prominent. High levels of mobility are mentioned in interviews by social workers, welfare caseworkers, elementary school teachers, and other service providers, are documented in their records, and are demonstrated in residential histories of low-income families.

Rural school district personnel report that more families than in the past move in or out during the course of a school year. For example, in one rural district with a large population of poor families living in the village, transfers in and out of the elementary school in two recent years (1988-'89 and 1989-'90) reached 28 percent and 34 percent of the total elementary enrollment of around 520. Although the total number of pupils hardly changed over the period, a record number of pupils entered and withdrew, and several children moved in and out several times within the two years. Approximately 60 percent of the moves in and out were within the three adjoining counties, confirming my interview data showing that most of the moves out of the community are to nearby places. Head Start programs experience similar turnover: one Head Start center with a capacity of 17 children served a total of 30 children during the course of a recent school year, losing and replacing children throughout the ten months.

The patterns and causes of this mobility have been explored in several of the research counties through the questionnaire-interviews with thirty low-income women. Their residential histories indicate that a major factor in mobility is deterioration in the rural housing situation that includes: too few low-cost rental units for an increased number of low-income renters; rents that have risen far faster than local pay scales; and poorer quality housing. In earlier times, the rural poor largely owned their homes (nationally 55 percent of the rural poor households in 1985 owned their homes). Although no recent figures are available for county or community levels, a trend from homeownership to rental seems clear among the rural poor. Of the 30 women interviewed for residential histories, 23 are currently living in a place they rent. Of the 7 who are not renting, one married couple owns its home and one woman's boyfriend owns the home, but all five of the other non-renters are living in a dwelling or on land owned by relatives, mostly parents or grandparents, and are paying little or no rent; several are purchasing the land or dwelling on a flexible land-contract basis. However, as these and other interviews clearly show, many rural poor people are not able to set up a used cheap trailer or build an inexpensive make-shift house on land owned by relatives. This is because fewer of their parents now own land, because fewer of them have family in the area, and because the proliferation of land-use and housing regulations now limits their ability to utilize these traditional strategies to keep themselves housed with minimal cash expenditure.

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Residential mobility is also propelled by marital and family instability, as was shown in the residential history interviews. Women commonly reported that they had moved several times after separating from a husband or partner, mostly because they had trouble keeping up with the rent on their own or because the places they could afford turned out to be unsafe or totally inadequate, or because they joined with or split up with a subsequent partner. Some families, both single-parent and married or coupled, move rapidly and suddenly within and between rural communities. They may move three or more times in a year, from one rented apartment to another one nearby, from one village to another, from trailer park to trailer park, from village to trailer park and back to village, from open-country to village and back. Between any two residences, a family is likely to double up in the homes of relatives or friends.

In general, young adults appear to be the most mobile, alternating between rented residences and the homes of their parents and siblings. Young single adults "bunk in" with friends, move out, return home, are asked to leave, and then move in with other friends; only a few end up in a small-town shelter, where they may get assistance in finding another place. Unmarried teenage mothers make frequent moves between the homes of parents and boyfriends and their own apartments, for which social services pays the rent. Married-couple families prone to frequent moves tend to have other problems as well, and may be classified by local service providers as "dysfunctional." Their frequent moves may further undermine family functioning, weaken whatever stabilizing ties they may have to people, places, and institutions, and make it even less likely that they will stay put.

In some rural vacation areas, a seasonal mobility pattern exists. Low-income families rent lakeside cottages or backwoods cabins at off-season rates during the autumn, move to town to stay with relatives for the colder months, and then move back to the cottage in early spring. During the summer high season, they may stay with other relatives or in a public campsite until autumn comes and they can return to the cottage. A variant of this pattern includes a room in a small town motel for the winter months, paid for by the county department of social services.

## Summary and conclusions

When 1990 census data become available on population, incomes, and housing, the rural poverty picture will become clearer, although because of the considerable variation from place to place, we will need to have disaggregated, localized data to discern what really is taking place. Some rural counties and communities may weather the current recession and may benefit by continuing to draw a more affluent in-migrant population, while other communities may lose still more employment and may gain more low-income residents. If deterioration of rural employment continues through the next decade, and if the trend towards more female-headed families also continues, then from both sources, many rural communities will experience a rise in poverty rates. Some places, however, will have an even sharper increase in poverty because in addition to employment and family forces, they will be affected by adverse migration trends as poverty is redistributed around the state. It is these places with multiple poverty risks that should most concern us, for the continued downward spiral can become a cycle of poverty from which neither people nor places will escape for many years.

Although my research is still incomplete, certain patterns of increased and worsened rural poverty are already identifiable, and guidelines for policy and program responses are emerging. At present, I would emphasize five research-based generalizations that have policy-relevant implications.

1. Rural impoverization is a result of three separate processes and involves three different populations: poor rural residents are unable to escape from entrenched intergenerational poverty; rural residents experiencing employment or family changes are falling into poverty; and urban residents who were already poor are migrating to rural places. It is important to separate these three populations and processes, for each will require a different response. People who have been poor for generations may need special multi-faceted assistance to overcome deleterious physical, psycho-social, and educational effects of long-term poverty; residents who have recently fallen into poverty need prompt and specific short-term assistance in job re-training, housing, and medical and child care to get them out of poverty quickly; poor people who have come to a rural community seeking relief from urban slum conditions may require assistance in making social and institutional connections, as well as preparation for employment. Since some of the communities where poverty is increasing have no adequate local employment opportunities, public transportation to the nearest dynamic employment area will be necessary for all three groups of the low-income population.

2. Increasing rural poverty is caused by the interaction of changes in rural employment, in family relationships, and in housing; and each of these changes exacerbates the others. In order to ameliorate the situation, each of the several causes must be tackled, but the efforts must be integrated in a comprehensive, holistic approach. For example, the poverty of rural single mothers that leaves them with a $100 monthly shortfall between earnings or welfare shelter allowance and local rents requires an expansion of housing subsidies as well as the education and job

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retraining programs that prepare women for more adequate employment.

3. The heightened residential mobility that seems to characterize a significant number of the younger generation of low-income adults presents a serious problem for the mobile families and also for the institutions and communities through which they circulate. Stabilizing families and helping them build social connections in the communities where they reside should be a priority effort. Increasing, rather than curtailing, their options for rural homeownership—even if the home is a trailer or a very modest house—would be particularly helpful. To the extent that high levels of mobility continue, though, local institutions such as schools need to respond creatively to minimize the negative impact of frequent moves.

4. Increased rural poverty includes not only impoverization of people but also impoverization of communities, which may render some communities less able to stem their economic decline and assist their needy residents. Communities with rapid increases in poverty will need assistance in preventing social-institutional decay and in meeting the needs of their residents. State aid formulas and funding allocations must be reworked to reduce the fiscal penalty to communities receiving in-migrant poor people.

5. Rural impoverization is not a "rural problem" that exists free-standing and independent of what is happening in urban America and the nation as a whole. Particularly in the densely populated Northeast, with its many metropolitan areas, urban trends and forces have major consequences for poverty in rural localities. Solutions to rural poverty, therefore, will necessarily involve addressing the urban poverty condition. Reducing the push-out factors in cities, perhaps by constructing more public or other low-rent housing, might reduce the migration to small towns. On the other hand, to the extent that this urban-to-rural migration of the poor people continues, the receiving rural communities will need assistance in coping with the financial costs and social adjustments.

To fully understand the impoverization now striking many rural people and places, and to design appropriate and effective preventions and remedies, more research is needed, and from a variety of disciplines and approaches. Quantitative research at the state and local level is needed, for example, to determine the scope and scale of impoverization: how many rural people are falling into poverty and how many communities are becoming impoverished? Comparative research is needed to explore trends of impoverization of communities, asking such questions, for example, as why some places attract poorer in-migrants while others attract the more economically secure? On the level of impoverished individuals and families, research among poor households might focus on the specific factors causing some people to become highly mobile, even homeless, while others stay in place and continue to have housing. Since an effective attack on the problem of rural poverty must recognize, utilize, and build on the social and institutional strengths already present in many small communities, research is also needed to discover these strengths and learn how best to use and enhance them in a multi-faceted rural development effort.

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